

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

GIRAFA.COM, INC.,)
)
Plaintiff,)
)
v.)
)
)
AMAZON WEB SERVICES LLC,))
AMAZON.COM, INC., ALEXA)
INTERNET, INC., IAC SEARCH &))
MEDIA, INC., SNAP TECHNOLOGIES,))
INC., YAHOO!, INC., EXALEAD S.A., and))
EXALEAD, INC.,)
)
Defendants.)
_____)

CASE NO. 07-787 (SLR)

DECLARATION OF GABRIEL ROBINS, Ph.D.

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1 Overview of this Declaration

1. I, Professor Gabriel Robins, have been retained as a technical expert by Cislo & Thomas LLP, legal counsel to Snap Technologies, Inc., to analyze and respond to Girafa.com's Motion for Preliminary Injunction dated March 13, 2008, the Declaration of Dr. Myers dated March 12, 2008, the Declaration of Shirli Ran dated March 7, 2008, the Deposition of Dr. Myers dated April 19, 2008, and related documents in the Girafa.com v. Amazon et al. litigation regarding United States Patent 6,864,904 (the '904 Patent). Unless otherwise noted, the facts set forth in this declaration are of my own personal knowledge, and if called to testify I could and would competently testify thereto.

2 My Professional Qualifications

2. My curriculum vitae is attached as Exhibit 1, and a brief summary of my professional qualifications and background follows. I received my Ph.D. degree in 1992 from the UCLA Computer Science Department. I joined the Department of Computer Science at the University of Virginia in 1992 as Assistant Professor of Computer Science. In 1994, I received the National Science Foundation Young Investigator Award from the U.S. National Science Foundation. In 1995, I received a Lilly Foundation Teaching Fellowship, as well as the Packard Foundation Fellowship (a \$500,000 research grant awarded to a total of only 27 computer scientists in the last twenty years).

3. In 1996, I received an All-University Outstanding Teaching Award, and was promoted to Associate Professor with tenure. In 1997, I received the Walter N. Munster Endowed Chair. In 1998, I was invited to join the Army Science Board, the top technical

advisory board to the U.S. Army on science, technology, and engineering. On numerous occasions I also advised the U.S. Government and the Department of Defense on matters of defense and national security. In 2002, I was promoted to full Professor with tenure, and in 2007, I received the Society for Industrial and Applied Mathematics (SIAM) Outstanding Paper Award.

4. I have published almost 100 refereed research papers and journal articles, as well as a book and several book chapters, and about four dozen technical reports published by USC, UCLA, and UVa. I served on the technical program committees of several leading conferences, and on the Editorial Board of the Institute for Electrical and Electronics Engineers (IEEE) Book Series. I served as Associate Editor of IEEE Transactions on VLSI Systems, and the journal Research Letters in Electronics. I also regularly referee and review scientific papers for a number of leading journals, conferences, and book publishers, and I serve as a grant proposal reviewer for federal research funding agencies as well as private foundations. I have taught numerous computer science courses, and I have performed and directed computer science research continuously for the last twenty-five years. I am a member of leading professional societies such as the Association of Computing Machinery (ACM) and the Institute for Electrical and Electronics Engineers (IEEE).

5. I am being compensated for my time consulting in this matter at the rate of \$375 per hour. My salary is not dependent on the outcome of the case, and I have no personal interest or financial stake in this litigation or its outcome.

3 Legal Standard Used in this Declaration

6. I am not an attorney. For the purposes of this declaration, I have been informed about certain aspects of the law that are relevant to my analysis and opinion. In formulating my opinions, I have taken into account the following principles of the law regarding patent infringement, which I understand to be accurate statements of the law.

7. I understand that infringement involves a two-step analysis and that the first step is determining the proper construction of the asserted claims.

8. I have been instructed that ultimately claims are construed by the judge in light of how one of ordinary skill in the art would understand the claims. It is my understanding that what is to be considered includes the language of the claims, the patent specification, the drawings, and the prosecution history, including any prior art listed by the Examiner or the applicant. It is my understanding that information external to the patent, including expert and inventor testimony and unlisted prior art, are to be considered in construing the claims only if ambiguities remain. However, expert testimony may be useful in helping to explain the technology. I further understand that technical dictionaries, encyclopedias, and treatises may also be used in claim construction, as long as these definitions do not contradict any definition found in or ascertained by a reading of the patent documents.

9. I understand that in arriving at the proper construction of the language of the claims of a patent, it is generally improper to bring requirements or limitations recited in the specification or drawings into the meaning of the claim terms. However, I understand that there

are certain situations where a patent may define a claim term in the specification and/or reference a particular aspect of the invention as being important or critical to the invention, and in such cases, it may be proper to construe a claim term in a more limited manner than its plain, ordinary meaning in the claim itself. I further understand that a patent file history may contain references that specifically limit the scope of a term used in the claims.

10. I understand that patent claims may be written in a format known as “means plus function” language where particular claim language may be described in functional terms, such as a means for accomplishing a task, and that under this particular claiming format, the structure(s) that accomplishes the recited means or function would typically be recited elsewhere in the claims or in the patent specification.

11. I understand that the second step of the infringement analysis is determining whether the accused products contain all of the elements of the asserted claims. A product is covered by and, thus, infringes a patent claim if the product meets or embodies each and every limitation of the patent claim, either literally or under the doctrine of equivalents. A method claim is infringed when each of the recited steps are performed.

12. I understand that an accused product literally infringes a patent claim if it contains every limitation of the claim. I further understand that the failure to meet a single limitation is sufficient to negate literal infringement of a claim.

13. I understand that an accused product that does not literally infringe a claim may nonetheless infringe the claim under the doctrine of equivalents. It is my understanding that, to establish infringement under the doctrine of equivalents, the accused product must be shown to include an equivalent for each claim limitation that is literally absent.

14. It is my understanding that infringement under the doctrine of equivalents may be established by showing that the elements of the accused product perform substantially the same function, in substantially the same way, to achieve substantially the same result as the corresponding elements of the patented invention. I further understand that Girafa is not asserting infringement under the doctrine of equivalents at this time.

4 Sources Searched and References Cited

15. As part of this work, I conducted literature searches with respect to methodologies and techniques identified in the Myers Declaration, Myers Deposition, the '904 Patent, and related documents. The '904 Patent is reproduced in Exhibit 4 of this Declaration. Girafa's Motion for Preliminary Injunction (and associated brief), the Myers Declaration, the Myers Deposition, the Ran Declaration, and the '904 Patent prosecution history are hereby incorporated by reference. The libraries, archives, and repositories that I searched during my analyses include the IEEE Xplore digital library, the ACM Portal Digital Library, the SpringerLink Online Archive, and the U.S. Patent and Trademark Office (USPTO) patent database. As a result of these searches, I retrieved and examined journal articles, conference papers, books, manuals, and patents, spanning the last two decades.

16. All references cited in this declaration were published in the open literature either in conference proceedings, in professional journals of wide distribution, and/or on the Web. I also reference various Web sites, all of which are freely accessible to anyone through the Internet, as well as patents issued by the U.S. Patent and Trademark Office, all of which are part of the public record and accessible by anyone (e.g., via the Web). All the references cited in this Declaration are listed in Exhibit 2, and Exhibit 3 lists additional references that I examined during the preparation of this Declaration (including the papers and patents referenced by the '904 Patent, and its File Wrapper and prosecution history). I also spent time analyzing and utilizing Snap's various services on its website that are at issue in Girafa's Motion for Preliminary Injunction.

5 Claim Construction for the '904 Patent

17. As discussed above, infringement analysis involves a two-step process, the first of which is determining the proper construction of the asserted claims, in light of how one of ordinary skill in the art would understand the claims and their plain, ordinary meaning.

18. For the purposes of this Declaration and the analysis contained therein, I will assume and adopt Dr. Myers' definitions and/or constructions of the terms "person of ordinary skill in the art", "thumbnail visual image", "home page", "hovering over", and "visualization functionality", as detailed below. However, after additional research and discovery, revisions to Dr. Myers' constructions may be warranted, and I reserve the right to do so in future reports.

5.1 Definition of “Person of Ordinary Skill in the Art”

19. Dr. Myers defines in his Declaration a “person of ordinary skill in the art” as one who “would have a bachelor’s degree in computer science or related degree or equivalent experience, and at least 2 years of experience in Internet technologies or user interface design” [Myers Declaration, Page 7, Paragraph 36]. For the purpose of this Declaration, I will use this construction of “person of ordinary skill in the art” as proposed by Dr. Myers.

5.2 Construction of “Thumbnail Visual Image”

20. Dr. Myers construes in his Declaration a “thumbnail visual image” as “an image that is a smaller version of a larger image” [Myers Declaration, page 11, paragraph 47]. For the purpose of this Declaration, I will use this construction of “thumbnail visual image” as proposed by Dr. Myers.

5.3 Construction of “Home Page”

21. Dr. Myers construes in his Declaration a “home page” as “the main or front page of a web site” [Myers Declaration, page 11, paragraph 49]. For the purpose of this Declaration, I will use this construction of “home page” as proposed by Dr. Myers.

5.4 Construction of “Hovering Over”

22. Dr. Myers construes in his Declaration “hovering over” as “displayed so that it looks like it is in a layer in front of the other content” [Myers Declaration, page 12, paragraph 51]. For the purpose of this Declaration, I will use this construction of “hovering over” as proposed by Dr. Myers.

5.5 Construction of “Visualization Functionality”

23. Dr. Myers construes in his Declaration “visualization functionality” as “software or hardware that provides one or more images to the user” [Myers Declaration, page 12, paragraph 52]. For the purpose of this Declaration, I will use this construction of “visualization functionality” as proposed by Dr. Myers.

5.6 Construction of “Image Server”

24. Dr. Myers construes in his Declaration an “image server” as “a type of server that stores and delivers images” [Myers Declaration, page 11, paragraph 48]. He then contends, I believe erroneously, that an image server must be separated from a web server in the ‘904 Patent. For the purpose of this Declaration, I will use this construction of “image server” as proposed by Dr. Myers in the first sentence of paragraph 48 of his Declaration, but I do not believe the embellishment on the separate server is appropriately included in the construction of “image server” because the ‘904 Patent in, for instance, claim 1, does not require the image server and web server to be separate. It appears that Dr. Myers is attempting to import a limitation from the specification, which I understand to be improper.

5.7 Construction of “Annotated Web Page”

25. The term “annotated web page” is construed to mean “a web page modified to include thumbnail visual images”. Support for this construction comes from the way a person of ordinary skill in the art would read the plain and ordinary meaning of Claims 14, 31, 42, and 53 of the ‘904 Patent, which state that “said annotated web page includes the web page having within it thumbnail visual images of homepages of web sites referenced by hyperlinks contained in the web page” [‘904 Patent, Claims 14, 31, 42, and 53].

5.8 Construction of “Partially Concurrently”

26. The term “at least partially concurrently” is construed to mean “to some extent occurring at the same time”. Support for this construction comes from the plain and ordinary definitions of these terms known to any person of ordinary skill in the art. For example, the Merriam-Webster Dictionary (<http://www.merriam-webster.com/>) defines “partially” as “to some extent”, and defines “concurrently” as “operating or occurring at the same time”. “Overlapping in time” would also be an appropriate construction for “partially concurrently”.

5.9 Construction of “Within the Visual Image”

27. The term “within the visual image” is construed to mean “an element of the rendered web page”. Support for this construction comes from the way a person of ordinary skill in the art would know a Web browser to operate, in that a browser renders a Web page to produce a visual image of it, and then displays it to the user.

5.10 Construction of “Providing”

28. The term “providing” is construed to mean “transmitting and displaying”. Support for this construction comes from the ‘904 Patent “Summary of the Invention”, where it discusses a “system for displaying information received over the Internet” [‘904 Patent, Column 1, Lines 39-41], and where “receiving” implies that transmitting must occur as well. Additional support for this construction comes from, e.g., Claims 1, 18, 35, and 46 which discuss the ‘904 Patent’s functionality of “providing a thumbnail visual image” to a user, where the thumbnail is stored on a remote “image server” and is provided to a user across the Web, thus requiring the step of transmitting that thumbnail from the server to the user.

29. Moreover, transmitting thumbnails without displaying them would not suffice to achieve the overall functionality of the '904 Patent, since without the display of a thumbnail the user will not be able to see it. Thus, the term “providing” should also include a displaying step. A person of ordinary skill in the art would understand that “providing” (of a thumbnail) must include a transmission step (between the image server and the user/browser), as well as a “displaying” step (making the thumbnail visible to the user). “Providing” can also mean “sending and displaying” or “delivering and displaying”.

6 Elaboration of Definitions and Additional Issues

30. This section elaborates on the definitions, meanings and implications of several terms and phrases used in the '904 Patent.

6.1 The Meaning of “at Least Partially Concurrently Providing”

31. As explained above in section 5.8, the phrase “at least partially concurrently” is construed to mean “to some extent occurring at the same time”, while the term “providing” is construed to mean “transmitting and displaying” (see Section 5.10). Therefore, the phrase “providing X and at least partially concurrently providing Y” means that “the transmitting and displaying of X to some extent occurs at the same time as the transmitting and displaying of Y”.

32. In particular, consider the following excerpts from Claims 1, 18, 35, and 46 of the '904 Patent (underline emphasis added):

“... providing to a user a visual image of a web page containing at least one hyperlink; and at least partially concurrently providing a thumbnail visual image of the home page of at least one web site which is represented by said at least one hyperlink...”

[‘904 Patent, Claim 1]

“... providing to a user a visual image of a web page containing at least one hyperlink; and second functionality operative at least partially concurrently with said first functionality for providing a thumbnail visual image of the home page of at least one web site which is represented by said at least one hyperlink”

[‘904 Patent, Claim 18]

“... providing to a user a visual image of a web page containing at least one hyperlink; and at least partially concurrently providing a thumbnail visual image of another web page of at least one web site which is represented by said at least one hyperlink...”

[‘904 Patent, Claim 35]

“... providing to a user a visual image of a web page containing at least one hyperlink; and second functionality operative at least partially concurrently with said first functionality for providing thumbnail visual image of another web page of at least one web site which is represented by said at least one hyperlink...”

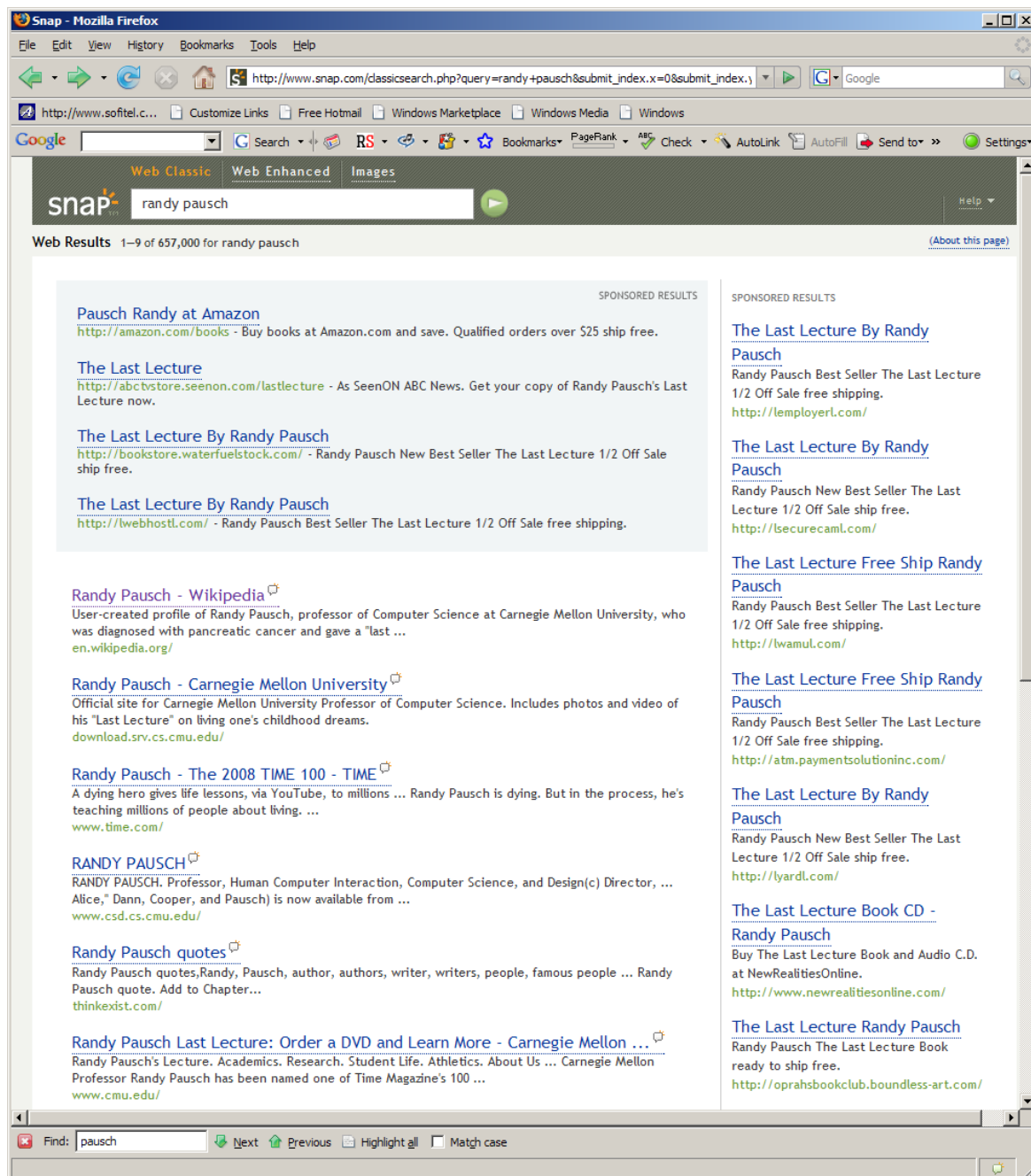
[‘904 Patent, Claim 46]

33. Thus, in all four of the Claims (1, 18, 35, and 46) above, the ‘904 Patent describes a method for “providing” (i.e., “transmitting and displaying”) “a web page” and “at least partially concurrently” (i.e., “to some extent occurring at the same time”) “providing” (i.e., “transmitting and displaying”) a “thumbnail visual image”. That is, the system described by the ‘904 Patent performs the transmitting and displaying of “a web page” to some extent at the same time as the transmitting and displaying of a “thumbnail visual image”.

34. On the other hand, the analyses detailed below reveal that the Snap Classic and Snap Browser Add-On tools do not perform the transmitting and displaying of “a web page” to some extent at the same time as the transmitting and displaying of a “thumbnail visual image”. In other words, the Snap Classic and Snap Browser Add-On tools do not perform these two operations “at least partially concurrently”.

6.1.1 Verifying the Lack of “Partially Concurrently” in Snap Classic

35. To verify that the Snap Classic tool does not perform the two said operations of providing a Web page and providing a preview (or thumbnail visual image) “at least partially concurrently”, I performed the following experiment. I first initiated a Snap Classic search using the search phrase “Randy Pausch”, at 3:38pm (EST) on Saturday May 10. The corresponding resulting screenshot of this Snap Classic search was as follows (also reproduced in Exhibit 6):



36. Note that in the above screenshot the Web page finished downloading, and no thumbnails or previews are visible anywhere in the browser window. In other words, the Web page has been provided, but no thumbnails or previews have been provided (i.e., transmitted or displayed) by the server to the user. I also checked the HTML source code of that search results Web page (listed verbatim in Exhibit 8) to make sure that no thumbnails or previews are “hidden” there, perhaps already transmitted by the server but not yet visible to the user. Indeed, an inspection of the HTML source code for that Web page (Exhibit 8) confirmed that no thumbnails or previews were contained there. (The HTML source code of any Web page can be obtained through the browser by, e.g., clicking on the “Page Source” option on the “View” menu in the Mozilla Firefox browser, and similarly using the “View Source” menu command in Microsoft’s Internet Explorer browser.)

37. I then left this browser window with the Snap Classic search results open on my computer, and over three hours later, at 7:05pm (EST) on Saturday May 10, I moved the mouse over the first search results entry (namely, “Randy Pausch – Wikipedia”). Snap Classic then provided (i.e., transmitted and displayed) the preview of this search entry, as shown in the following screenshot (also reproduced in larger size in Exhibit 7):

Snap - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.snap.com/classicsearch.php?query=randy+pausch&submit_index.x=0&submit_index.y=0

Google

http://www.sofitel.c... Customize Links Free Hotmail Windows Marketplace Windows Media Windows

Google Search RS Bookmarks PageRank Check AutoLink AutoFill Send to Settings

Web Classic Web Enhanced Images

snap randy pausch

Web Results 1-9 of 657,000 for randy pausch (About this page)

Pausch Randy at Amazon
<http://amazon.com/books> - Buy books at Amazon.com and save. Qualified orders over \$25 ship free.

The Last Lecture
<http://abctvstore.seenon.com/lastlecture> - As SeenON ABC News. Get your copy of Randy Pausch's Last Lecture now.

The Last Lecture By Randy Pausch
<http://bookstore.waterfuelstock.com/> - Randy Pausch New Best Seller The Last Lecture 1/2 Off Sale ship free.

The Last Lecture By Randy Pausch
<http://lwebhostl.com/> - Randy Pausch Best Seller The Last Lecture 1/2 Off Sale free shipping.

SPONSORED RESULTS

The Last Lecture By Randy Pausch
Randy Pausch Best Seller The Last Lecture 1/2 Off Sale free shipping.
<http://lemloyerl.com/>

The Last Lecture By Randy Pausch
Randy Pausch New Best Seller The Last Lecture 1/2 Off Sale ship free.
<http://lsecurecaml.com/>

Randy Pausch - Wikipedia
User-created profile of Randy Pausch, was diagnosed with pancreatic cancer
<en.wikipedia.org/>

Randy Pausch - Carnegie Mellon
Official site for Carnegie Mellon University's "Last Lecture" on living one's child
<download.srv.cs.cmu.edu/>

Randy Pausch - The 2008 TIME
A dying hero gives life lessons, via YouTube
<www.time.com/>

RANDY PAUSCH
RANDY PAUSCH. Professor, Human Computer Interaction (Alice, Dann, Cooper, and Pausch) is named
<www.csd.cs.cmu.edu/>

Randy Pausch quotes
Randy Pausch quotes, Randy, Pausch, Pausch quote. Add to Chapter...
<thinkexist.com/>

Randy Pausch Last Lecture: Order a DVD and Learn More - Carnegie Mellon ...
Randy Pausch's Lecture. Academics. Research. Student Life. Athletics. About Us ... Carnegie Mellon Professor Randy Pausch has been named one of Time Magazine's 100 ...
<www.cmu.edu/>

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The flag of Germany is a tricolour consisting of three equal horizontal bands displaying the national colours of Germany: black, red and gold. The black-red-gold tricolour first appeared in the early 18th century and achieved prominence during the 1848 revolution. The short-lived Frankfurt Parliament of 1848-49 proposed the tricolour as a flag for a united and democratic German state. With the formation of the Weimar Republic after World War I, the tricolour was adopted as the national flag of Germany. Following World War II, the tricolour was designated as the flag of both West and East Germany. Both flags were identical until 1960, when socialist symbols were added to the East German flag. Since reunification on 3 October 1990, the black-red-gold tricolour has remained the flag of Germany. The colours of the modern flag are associated with the republican democracy formed after World War I and represent German unity and freedom: not only the freedom of Germany, but also the personal freedom of the German people. (more...)

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- **Blair Cowen** succeeds Bertie Ahern as Taoiseach (prime minister) of the Republic of Ireland.
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Find: pausch Next Previous Highlight all Match case

http://www.snap.com/r.php?no_session_event=1&t=_eWUjBTAMTjPd4x-wB02Kuix16PrACj9r49xpQnIdLxExAJEF94tM476C69fMeBklAzh6TAQbva0BuVj7pJaoMjYqeJcdKVEgB-BH7L1...

38. Another independent confirmation that the Snap Classic tool provides the preview only when the user moves the mouse over one of the search results, and not at the time the search results Web page is provided, is as follows. Whenever the browser (Mozilla Firefox version 2.0.0.14 in the case of this experiment) transmits and receives information, a “send/receive icon” becomes animated near the top right corner of the browser window. When no information is transmitted, that icon remains inactive and grayed-out. Whenever the mouse is moved over a search result item in the Snap Classic window, that send/receive icon momentarily (i.e., for a second or two) becomes animated, indicating that information is being sent/received between the server and the browser. This again corroborates that previews are provided later in time (rather than at the same time) with respect to the Web page containing the search results.

39. Similarly, the “download progress indicator bar” near the lower right corner of the browser window becomes momentarily animated when information is being sent/received between the server and the browser, and it disappears when no information is being transmitted. Whenever the mouse is moved over a search result item in the Snap Classic window, the “download progress indicator bar” momentarily (i.e., for a second or two) becomes animated, indicating that information is being sent and received between the browser and the server. This again corroborates that in the Snap Classic tool previews are provided later in time (rather than at the same time) with respect to the Web page containing the search results.

6.1.2 Verifying the Lack of “Partially Concurrently” in Snap Browser Add-On

40. The Snap Browser Add-On tool behaves very similarly to the Snap Classic tool with respect to displaying search results and providing corresponding previews. Repeating the

above experiment with the Snap Browser Add-On tool yields the same results, namely that the Snap Browser Add-On tool previews are provided later in time (rather than at the same time) with respect to the Web page containing the search results.

41. In particular, the following is a screenshot of a Web page with the Snap Browser Add-On tool enabled; this particular Web page (<http://www.imdb.com/title/tt0068646/>) is from the Internet Movie Database (IMDB) Web site, and describes the movie “The Godfather” (see Exhibit 9 for a larger copy of this screenshot, taken at 9:23pm (EST) Saturday May 10, 2008):



42. At 11:32pm (EST) Saturday May 10, 2008, more than two hours after the above Web page was downloaded, I moved the mouse in this window over the name of the actor “Marlon Brando”. The Snap Browser Add-On tool then provided (i.e., transmitted and displayed) the preview of this entry, corresponding to the biography and other information about the actor Marlon Brando, as shown in the following screenshot (see Exhibit 10 for a larger copy of this screenshot, taken at 11:32pm (EST) Saturday May 10, 2008):



43. Note that in the previous screenshot (i.e., Exhibit 10) the “send/receive icon” icon (upper right) is animated and the “download progress indicator bar” (lower right) is active, indicating that the preview is being provided at that very moment; i.e., this screenshot was taken right at the moment when the preview was being downloaded from the Snap server, which was more than two hours after the Web page itself finished downloading. In contrast, in the screenshot prior to that (i.e., Exhibit 9), the word “Done” appears at the bottom left-hand side of the browser window and the “send/receive icon” at the upper right-hand side of the browser window is inactive (i.e., grayed-out), indicating that the Web page has long since finished downloading. Therefore, it is clear that these two events, namely the providing of a Web page and the providing of a thumbnail visual image, occur far separated in time.

6.1.3 The Snap Shots Publisher / Blogger Service

44. The Myers Declaration [Myers Declaration, Page 23, Paragraphs 72-73] and Girafa's Opening Memorandum of Law in Support of its Motion for Preliminary Injunction [Girafa Opening Memorandum, Page 29-39] allude to the Snap Shots for publishers / bloggers service. This service, described at the Snap Technologies Web site <http://www.snap.com/snapshots.php>, enables Web sites to provide a user with previews, as if the Snap Browser Add-On tool was installed on the user's browser (even though it may not be).

45. To test the functionality of the Snap Shots for Publishers/Bloggers service, I followed the installation instructions given at <http://www.snap.com/snapshots.php> and proceeded to install it on one of my Web pages, namely the Web page that lists selected computer science articles and readings for my students, located on the Web at:

http://www.cs.virginia.edu/~robins/CS_readings.html

46. Once the Snap Shots for Publishers/Bloggers service was installed on this Web page, (using an embedded Javascript code provided by Snap during the installation process), I then confirmed that browsing this Web page resulted in the generation of previews, with a behavior identical to the Snap Browser Add-On tool. A screenshot of the above Web page with the Snap Shots for Publishers/Bloggers service installed, showing several previews open, can be seen as follows (also reproduced in Exhibit 19):



47. Because the Snap Shots tool for publishers/bloggers service behaves identically to the Snap Browser Add-On tool, the infringement analyses for the Snap Browser Add-On tool also hold true for the Snap Shots for publishers/bloggers service.

48. It is my understanding that Girafa may be asserting that the Snap Shots for publishers/bloggers service directly infringes claims of the '904 Patent. Nevertheless, I note that since the functionality of the Snap Shots for publishers/bloggers service is identical to that of the Snap Browser Add-On tool, any non-infringement conclusions that apply to the latter likewise also apply to the former.

6.1.4 Summary of the “Partially Concurrently” Analysis

49. In summary, neither the Snap Classic, the Snap Browser Add-On tool, or Snap Shots for Publishers/Bloggers perform the transmitting and displaying of “a web page” “at least partially concurrently” (i.e., “to some extent at the same time”) with the transmitting and displaying of a “thumbnail visual image”. Rather, the thumbnail visual image is provided arbitrarily later in time than the Web page itself, and requires overt user intervention before it can even begin to occur (i.e., the user must move the mouse over a search result).

6.2 The Meaning of “Within the Visual Image”

50. Recall from Section 5.9 that the term “within the visual image” is construed to mean “an element of the rendered web page”. Web content displayed in a separate window, or that is otherwise not contained in the HTML code representing the rendered Web page and its visual image, is therefore not “within the visual image”. In particular, the previews created by the Snap Classic and the Snap Browser Add-On tools are not part of the HTML code

representing the Web page and its visual image, and are therefore not “within the visual image” of the Web page.

51. For example, the Web page of the Snap Classic search example discussed above in Section 6.1.1 (and shown as the screenshot of Exhibit 6) has the same HTML source code (Exhibit 8) as after the Snap Classic tool provided a preview for one of the Web links on that page (as shown as the screenshot of Exhibit 7). Similarly, the Web page of the Snap Browser Add-On tool example discussed above in Section 6.1.2 (and shown as the screenshot of Exhibit 9) has the same HTML code (Exhibit 11) as after the Snap Browser Add-On tool provided a preview for one of the Web links on that page (shown as the screenshot of Exhibit 10).

52. As discussed above (and illustrated in Exhibit 19), the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. Performing the same analysis as above for the Snap Shots for Publishers/Bloggers service shows that the previews created by the the Snap Shots for Publishers/Bloggers service are not part of the HTML code representing the Web page and its visual image, and are therefore not “within the visual image” of the Web page.

53. In summary, the previews provided by the Snap Classic, the Snap Browser Add-On, and the Snap Shots for Publishers/Bloggers services are not part of the HTML source code for the corresponding Web pages, and are thus not “an element of the rendered web page”. It follows that the said previews are not “within the visual image” of these Web pages.

6.3 The Meaning of “Splitting” and “Trimming” of URLs

54. Claims 44 and 55 of the ‘904 Patent discuss the “splitting” of URLs and the “trimming” of their path components, “based on the consideration of finding the most representative image of a given web page” [‘904 Patent, Column 15, Lines 12-22, and Column 16, Lines 33-44]. This process of “splitting” and “trimming” is further illustrated and detailed in Figures 4 and 5 of the Patent [‘904 Patent, FIG.4 and FIG 5., Sheets 4 and 5]. The exact definition of “consideration of finding the most representative image of a given web page” is left vague in the ‘904 Patent. In fact, this notion of “most representative” is indeterminate and not well defined in general.

55. In any case, none of the Snap services perform any “splitting” and “trimming” of URLs. The Snap Classic and Snap Enhanced tools receive their search result from a third party search result provider. For each search result, Snap receives information from the third party provider including 1) a Site Host URL and 2) an encrypted search result URL. The Site Host is the host and domain portion of the encrypted search result URL. The encrypted search result URL is secured by the third party such that Snap cannot determine the actual URL that will be visited when clicked. For example, instead of plain text that reads as http://en.wikipedia.org/wiki/Randy_Pausch Snap receives URLs such as:

[http://rc12.overture.com/d/sr/?xargs=15KPjg1mNSt5auwuf0L%5FiXEbqUkwwB
lp%2D89c1oeuJ7atUr9HdpJ%5FYuPa7By%5FVIUe](http://rc12.overture.com/d/sr/?xargs=15KPjg1mNSt5auwuf0L%5FiXEbqUkwwB
lp%2D89c1oeuJ7atUr9HdpJ%5FYuPa7By%5FVIUe)

as the search result URL.

56. Snap uses the Site Host as the web address displayed in the search results, as the title above the associated previews and for purposes of retrieving and displaying of the

webpage preview. For the sake of clarity, the reason that Snap uses the Site Host URL for the web page preview, is that it does not know the actual URL. To form the link target for 1) the web address displayed in the search results, 2) the title above the associated previews and 3) the actual preview, Snap encrypts the already encrypted search result URL to form a link target. When clicked, the link target will send the user to the actual search result page. As such, Snap does not perform any modification of that Site Host URL.

57. This encrypted URL, which appears to be garbled text, is not decipherable by anyone (or any software) that is not in possession of the decryption key. Since the Snap tools (and indeed anyone at Snap Technologies Inc.) are not in possession of the decryption key to these URLs (as confirmed by Snap's CTO), Snap cannot decipher these encrypted URL's, much less alter them in any way. In particular, the Snap Classic and Snap Enhanced tools do not perform any "splitting" and "trimming" of these URLs, and moreover the Snap tools could not perform any "splitting", "trimming", nor any other modifying operations on these URLs, even if they tried. Indeed, this is the very objective of encryption, namely to make information inaccessible (and therefore not modifiable) by anyone except the decryption-key holder.

58. The reason that the third party search result provider encrypts its search results before sending them to their customers (e.g., Snap Technologies Inc.), is that this gives the third party search result provider more control and tracking ability over their information, its usage, and the resulting revenue streams. In particular, the encryption of URLs forces the customer (Snap Technologies, Inc. here) to always inform the third party search result provider whenever one of its own users (i.e., a remotely located person sitting in front of a browser) clicks on a link

produced by a Snap search. This is because the link is encrypted and the third party search result provider is the only party who can decrypt the link and perform the correct Web address redirect after the user clicks on that encrypted link.

59. The Snap Browser Add-On tool does not employ encrypted links, but rather provides direct previews of exact Web pages, not of home pages, nor of Web page URLs that have undergone any kind of “splitting” or “trimming”. This can be verified by inspecting several of the examples in this Declaration (e.g., Exhibit 10, Exhibits 15 through 18, and Exhibits 24 through 29), where the previews of the Snap Browser Add-On tool can be seen to be those of exact URLs that directly refer to their target Web pages.

60. As discussed above (and illustrated in Exhibit 19), the functionality of the Snap Shots for Publishers/Bloggers service appears identical to that of the Snap Browser Add-On tool. In particular, the Snap Shots for Publishers/Bloggers service provides direct previews of exact Web pages rather than of home pages, without performing any kind of “splitting” or “trimming” of URLs.

61. In summary, none of the Snap services (Snap Classic, Snap Enhanced, the Snap Browser Add-On, and Snap Shots for Publishers/Bloggers) perform any kind of “splitting” or “trimming” of URLs.

6.4 The Meaning of “Annotated Web Page”

62. As explained above in section 5.7, the phrase “annotated web page” is construed to mean “a web page modified to include thumbnail visual images”. As can be seen from the

screenshot of Exhibit 6, the Snap Classic tool returns a search results Web page that does not include previews or thumbnails, and therefore does not provide “an annotated Web page”.

63. Similarly, Exhibit 9 and Exhibit 14 show a screenshot of a Web page provided while the Snap Browser Add-On tool was enabled. Again, these web pages do not include Snap previews or thumbnails, and therefore none of these Web pages are “an annotated Web page”.

64. As discussed above, the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. In particular, the Snap Shots for Publishers/Bloggers service does not provide “an annotated Web page”.

65. In summary, Snap Classic, Snap Browser Add-On, and Snap Shots for Publishers/Bloggers do not provide “an annotated Web page”.

6.5 Means-Plus-Function Claims

66. Claims 18 and 46 of the ‘904 Patent contain “means-plus-function” claim language, which consists of functional language in the absence of any specific structures for accomplishing the recited function, as elaborated below. Claim 18 of the ‘904 Patent reads as follows:

“ **18.** A system for presenting Internet information to a user comprising:
 first functionality providing to a user a visual image of a web page containing at least one hyperlink; and
 second functionality operative at least partially concurrently with said first functionality for providing a thumbnail visual image of the home page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image

server that stores and provides said thumbnail visual image.”

67. For the first functionality, the ‘904 Patent specification includes the following structures corresponding to the language of Claim 18: a Web browser 100 and 200 connected to a web server 102 and 202, respectively, by the Internet. The first functionality of Claim 18 is “providing” (see Section 5.10 for the construction and meaning of “providing”) a user with a visual image of a web page containing at least one hyperlink.

68. For the second functionality, the ‘904 Patent specification includes the following structures corresponding to the language of Claim 18: an image server 104 and 210 connected to an image database 106 and 212, a Web browser 100 and 200 connected to a web server 102 and 202 by the Internet, and visualization functionality 103 and 206. The second functionality of Claim 18 is “providing” (see Section 5.10 for the construction and meaning of “providing”) a thumbnail visual image of the home page of the said web site via the Internet, by employing an image server that stores and provides said thumbnail visual image.

69. Claim 46 of the ‘904 Patent reads as follows:

“ **46.** A system for presenting Internet information to a user comprising:
 first functionality providing to a user a visual image of a web page containing at least one hyperlink; and
 second functionality operative at least partially concurrently with said first functionality for providing a thumbnail visual image of another web page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image server that stores and provides said thumbnail visual image, said second functionality comprising third functionality employing a web browser which interfaces via

the Internet with a web server, separated from said image server, including visualization functionality, said visualization functionality being operative to embed commands to the web browser to download, via said image server, thumbnail visual images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.”

70. For the first functionality, the ‘904 Patent specification includes the following structures corresponding to the language of Claim 46: a Web browser 100 and 200 connected to a web server 102 and 202, respectively, by the Internet. The first functionality of Claim 18 is “providing” (see Section 5.10 for the construction and meaning of “providing”) a user with a visual image of a web page containing at least one hyperlink.

71. For the second functionality, the ‘904 Patent specification includes the following structures corresponding to the language of Claim 46: an image server 104 and 210 connected to an image database 106 and 212, a Web browser 100 and 200 connected to a web server 102 and 202 by the Internet, and visualization functionality 103 and 206. The second functionality of Claim 18 is “providing” (see Section 5.10 for the construction and meaning of “providing”) a thumbnail visual image of the home page of the said web site via the Internet, by employing an image server that stores and provides said thumbnail visual image.

72. For the third functionality, the ‘904 Patent specification includes the following structures corresponding to the language of Claim 46: a Web browser 100 and 200, visualization functionality 103 and 206, and an image server 104 and 210 which is separate from the web server 102 and 202. The third functionality of Claim 46 is “providing” (see Section 5.10 for the

construction and meaning of “providing”) to the user via a Web browser a Web page annotated with thumbnail visual images of Web pages, downloaded from an image server separate from the Web server.

6.6 The Snap Technologies Inc. Web Servers

73. The Snap Technologies Inc. Web servers consist of hundreds of computers, divided into groups of physically interchangeable “clusters”. These machines are all configured identically in terms of both hardware and software, and run the same Linux operating system and Apache Web server. They also use the “Boa” lightweight server to fetch previews and images from disk.

74. The domain name “shots.snap.com” refers to one of these clusters, and each server in that cluster serves multiple types of data, including Javascript, HTML, and previews. To verify that the “shots.snap.com” server delivers other types of data aside from images and previews, I sent the following request to the “shots.snap.com” server using my Mozilla Firefox browser:

http://shots.snap.com/ss/spakey/snap_shots.js

Indeed, the “shots.snap.com” server replied to this request by returning a sizeable segment of Javascript code, shown verbatim in Exhibit 12. Thus, the Snap servers certainly serve more than just images and previews.

75. Based on information provided by the Snap Technologies CTO, who on April 28 analyzed the traffic log of a representative Apache server running on one of Snap’s server

clusters, the typical server traffic requests for “shots.snap.com”, categorized by the type of data provided by the server back to the requestor, were as follows: 43% to 47% of the data requests were for Javascript code, 10% of the data requests were for preview images, 23% of the data requests were for tracking advertising logos, 7% to 8% of the data requests were for “shot” HTML/Javascript content, 4% to 6% of the data requests were for “shot-sense” HTML, and 2% to 3% of the request traffic was for operational status text.

76. Similarly, the typical server traffic requests for the “www.snap.com” cluster, categorized by the type of data provided by the server back to the requestor, were as follows: 14% to 23% of the data requests were search queries returning HTML and Javascript code, 7% to 10% of the data requests were for the “about pages” returning HTML and Javascript code, 2% to 3% of the requests were for Javascript code, 3% to 4% of the data requests were for previews, images and logos, 2% to 4% of the requests returned URLs in response to user clicks on search results, 13% to 17% of the data requests were for other kinds of functions, and 16% to 24% of the request traffic was for operational status text.

77. The domain names “www.snap.com” and “i.snap.com” are synonyms (i.e., they both refer to the same Web site, namely Snap Technologies home page, as can be verified by typing either of these two domain names into a browser and checking that they both lead to the same Web site), a screenshot of which is as follows (and also reproduced in larger size in Exhibit 13):



78. In summary, the Snap Technologies' Web server clusters are ordinary general-purpose configurations, comprised of typical commodity computers running the standard Apache Web server program (as do most Web servers in the world). Moreover, only a small fraction of the Snap server traffic (about 10% for shots.snap.com and about 4% for www.snap.com) constitute requests for previews and images, whereas the majority of the Snap server request traffic is for non-image data such as HTML, Javascript code, text, and other types of data.

7 Fundamental Differences Between Previews and Thumbnails

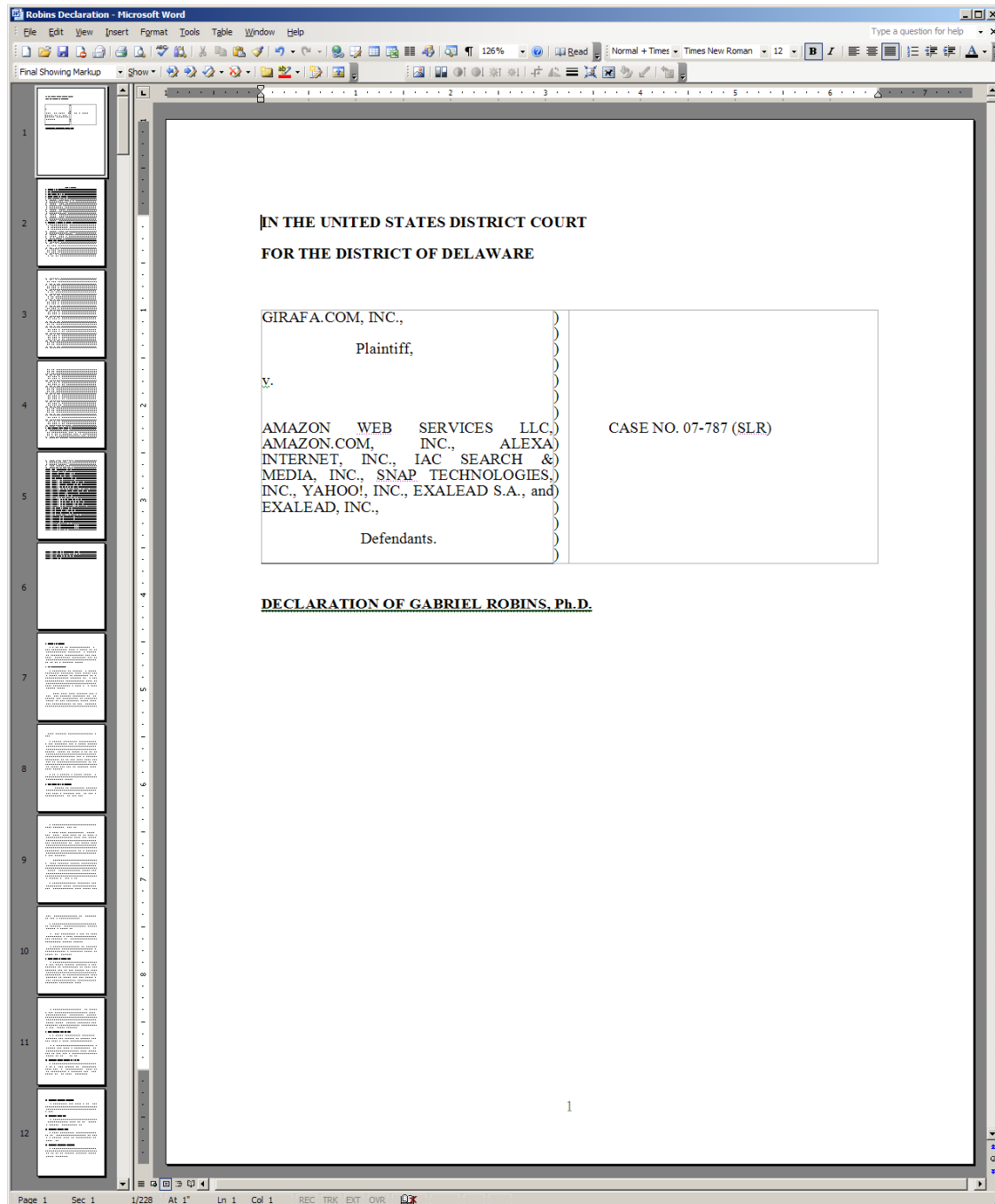
79. There are dramatic quantitative and qualitative differences between the previews used by Snap Technologies and ordinary thumbnails. In this section we highlight and discuss some of these fundamental differences between previews and thumbnails.

7.1 Previews are Larger than Thumbnails

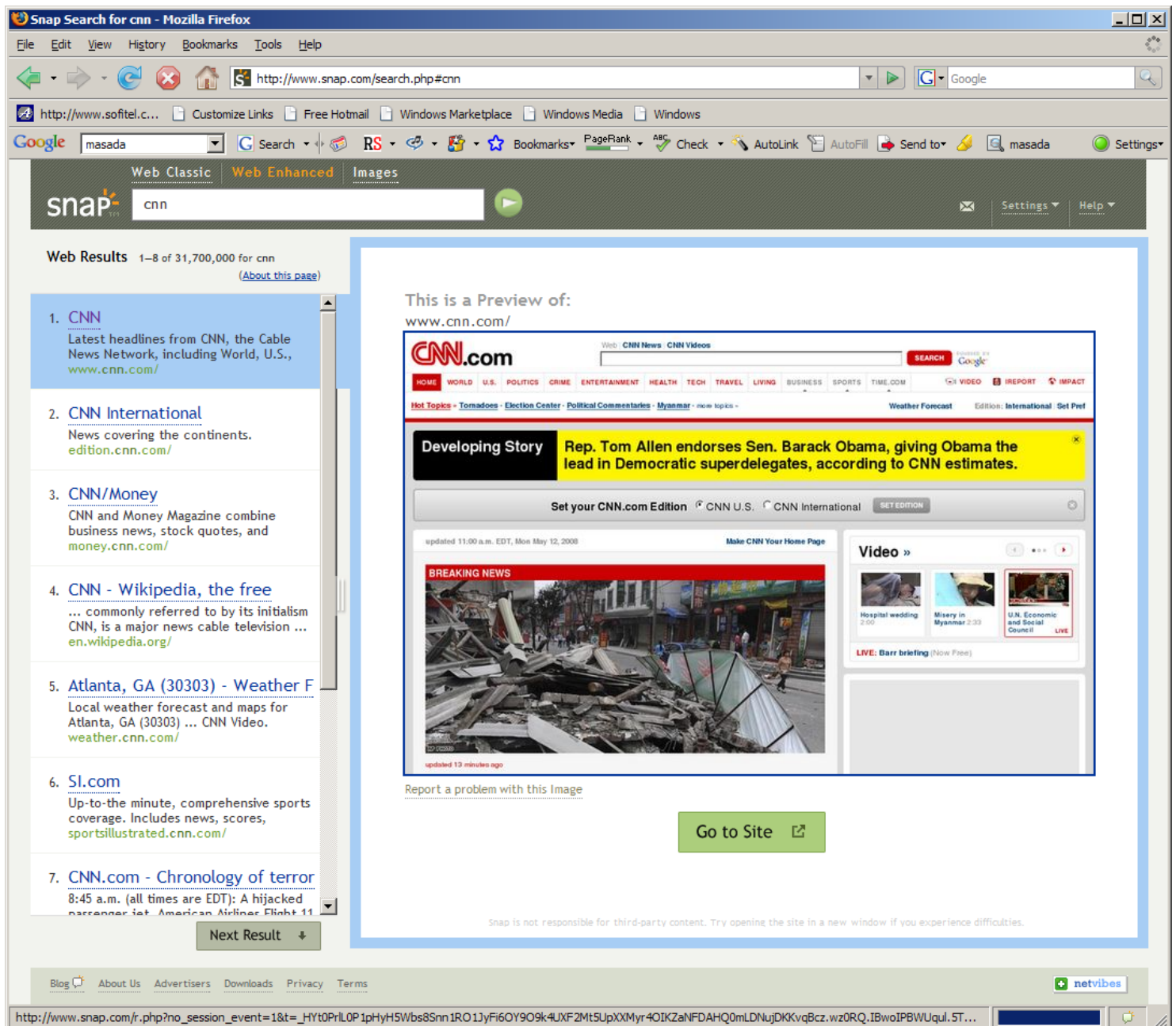
80. The previews provided by Snap Technologies are much larger than the thumbnails provided by the Girafa.com tool, by up to a factor of twenty or more in terms of area. Moreover, the Snap Technologies' previews are also much larger (by up to a factor of ten or more) than the thumbnail sizes taught by dozens of published references and prior art (including numerous papers, books, manuals, and issued patents).

81. The Snap Enhanced tool produces previews in three basic sizes, namely 400x257, 640x411, and 760x480. The previews produced by the Snap Enhanced tool are larger than any thumbnails that I have encountered in my experience, including the thumbnail sizes taught by dozens of published references and prior art (including papers, books, and issued patents).

82. To illustrate the dramatic size difference between previews and thumbnails, consider the thumbnails produced by the Microsoft Word 2003 program when the “Thumbnails” view is selected from the “View” menu, a screenshot of which is shown as follows, with the thumbnail images (labeled 1-12) of the Word document pages appearing to the left of the Word document page display (see also Exhibit 27 for a larger version of this screenshot):



83. In contrast to the small Microsoft Word thumbnails, the Snap Enhanced previews are dramatically larger, as can be seen in the following screenshot of the Snap Enhanced tool (resulting from using Snap Enhanced to search for the keyword “CNN” at 1:14pm (EST) on Monday May 12, 2008; also see Exhibit 28 which reproduces this screenshot):



84. The following figure shows an MS Word thumbnail, a Girafa.com preview, and a mid-size (not a large-size) Snap Enhanced preview side-by-side, depicted to the same scale as each other (and shown at the same 100% actual size as they appear on the computer screen; see also Exhibit 29 for a reproduction of this figure):

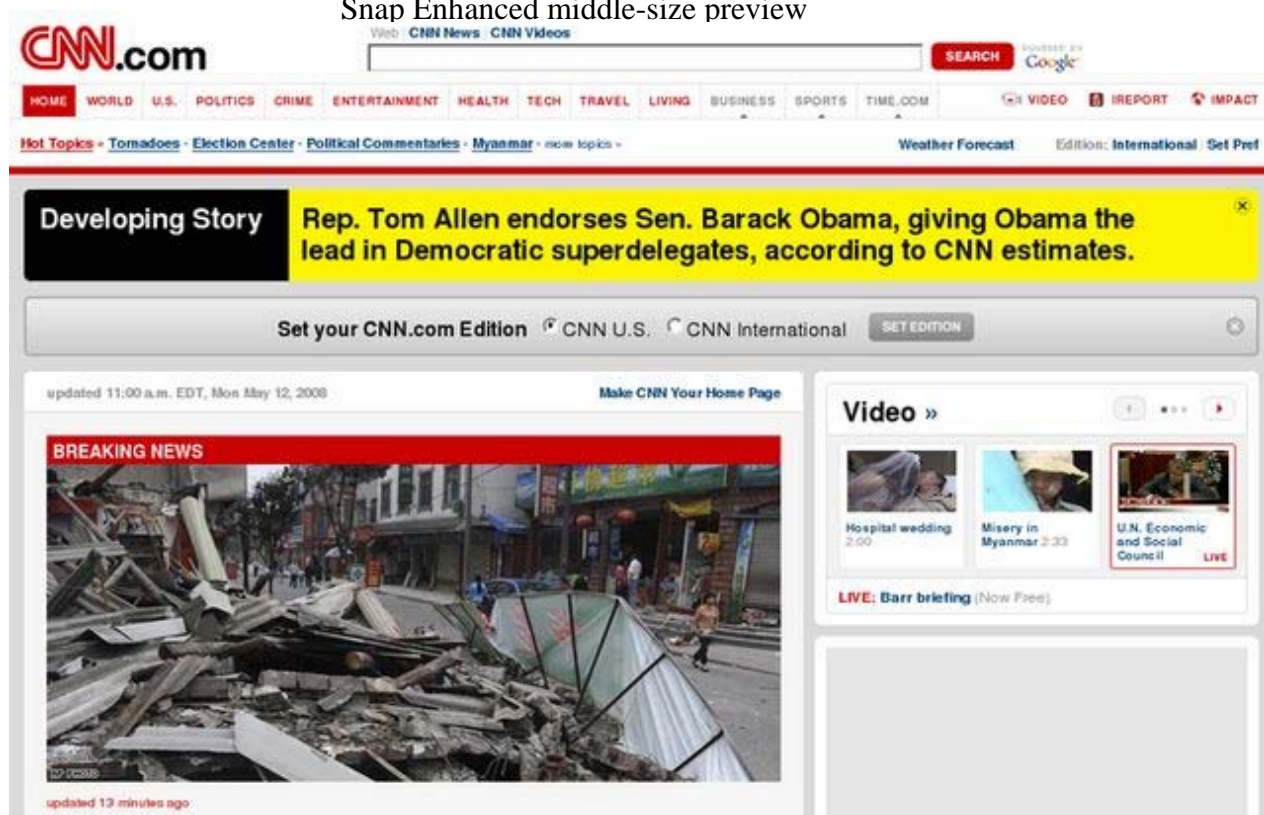
MS Word thumbnail



Girafa.com thumbnail



Snap Enhanced middle-size preview



85. The Snap Enhanced preview (bottom) is dramatically larger than either the MS Word thumbnail (top left), or the Girafa.com thumbnail (top right). The figure above shows a middle-size Snap Enhanced preview; the large-size Snap Enhanced previews are even larger still, in fact too large to fit within the margins of this page at 100% size. Note also that much of the text inside the Snap Enhanced preview (bottom) is clearly readable, whereas none of the text inside any of the MS Word thumbnails (top left) is readable, and almost none of the text inside the Girafa.com thumbnail (top right) is readable - another illustration of the fundamental size difference between previews and thumbnails.

86. Moreover, the Snap Enhanced preview in the above screenshot (i.e., Exhibit 28 and Exhibit 29) is the middle-sized one (i.e., 640x411 pixels) of the three preview sizes provided by the Snap Enhanced tool, not the largest one. The largest of the three sizes (i.e., 760x480 pixels) would be even bigger still than the one shown in the screenshot above (i.e., in Exhibit 28 and Exhibit 29). Dr. Myers himself clearly demonstrates the dramatically large size of the Snap Enhanced previews in Exhibit M-5 of his Declaration [Myers Declaration, Exhibit M-5].

7.2 Previews Can be Full-Fledged Web Pages

87. The previews generated and displayed by Snap Technologies' Browser Add-On tool often contain an actual Web page, complete with clickable live URL links, playable videos, RSS feeds (Web "channels" or broadcasts), music audio files, and other rich content. This is in stark contrast to thumbnails, which are only static small bitmap images (see '904 Patent at Column 9, lines 23-24) that are not imbued with the richness and interactivity of an actual mini Web page of the Snap previews.

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

GIRAFA.COM, INC.,)
)
Plaintiff,)
)
v.)
)
)
AMAZON WEB SERVICES LLC,))
AMAZON.COM, INC., ALEXA))
INTERNET, INC., IAC SEARCH &))
MEDIA, INC., SNAP TECHNOLOGIES,))
INC., YAHOO!, INC., EXALEAD S.A., and))
EXALEAD, INC.,)
)
Defendants.)
_____)

CASE NO. 07-787 (SLR)

DECLARATION OF GABRIEL ROBINS, Ph.D.

PART 2

88. For example, with Snap's Browser Add-On tool enabled, a Google search on the term "Randy Pausch", followed by mousing over the search results, yields a series of previews, one of which depicts Randy Pausch's Wikipedia page, and this preview contains text and live links, as shown in the following figure (also reproduced in full-size in Exhibit 15):



89. Note that part of the text in this Snap preview window was selected using the mouse (visible as a dark blue highlight), proving that this preview is not merely a static image, but is rather real text characters which can be selected, copied, pasted, etc. Moreover the lighter blue text phrases inside the Snap preview window are clickable live URL links to other Web pages. Also, note how much larger the Snap preview window is than the three Google-generated thumbnails to its left, which again highlights the dramatic size differences between previews and thumbnails.

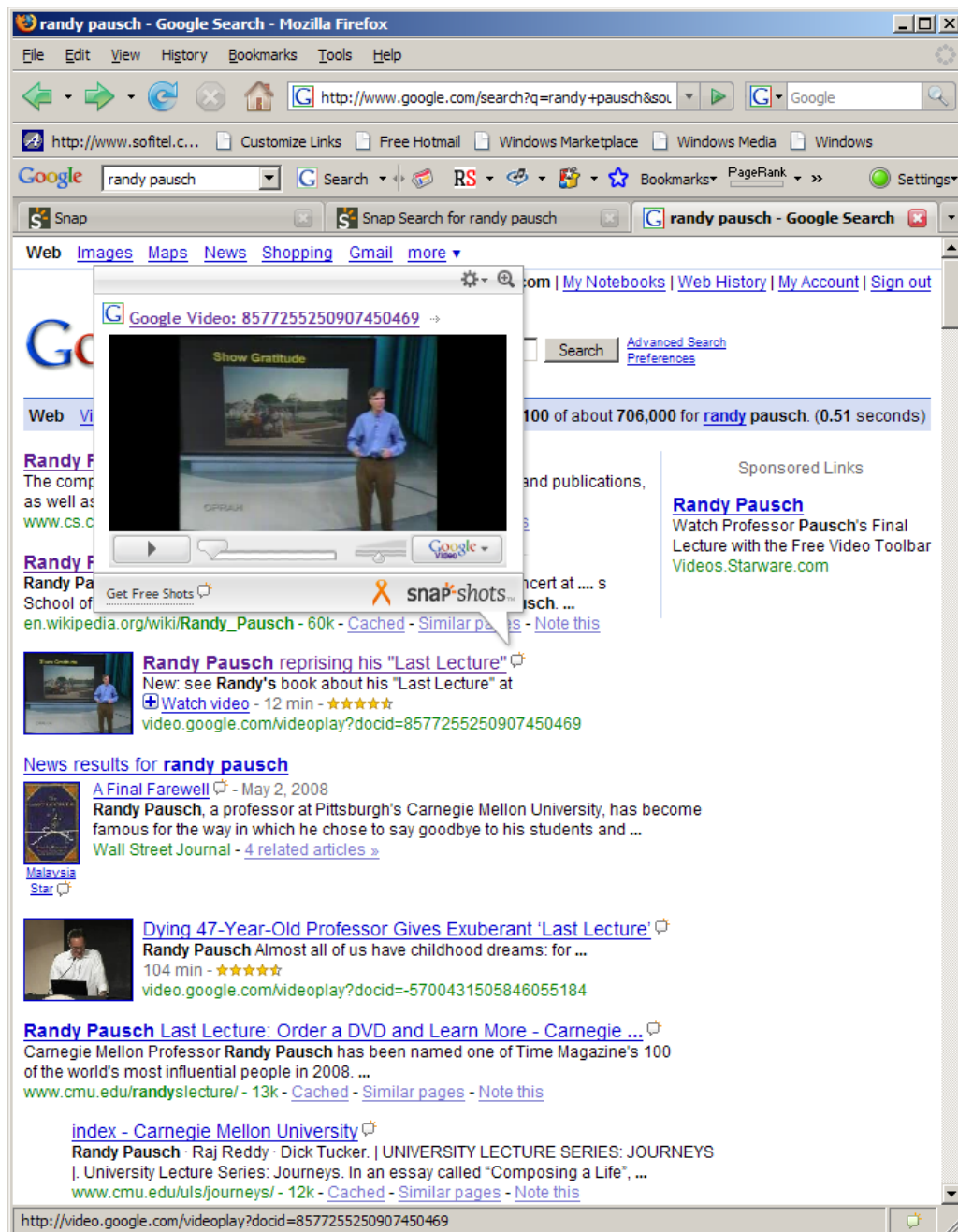
90. As discussed above (and illustrated in Exhibit 19), the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. In particular, the Snap Shots for Publishers/Bloggers service also provides the same kind of previews that are full-fledged Web pages with live links and real text, like those provided by the Snap Browser Add-On tool.

91. This interactive live Web page capability of previews, which is completely lacking in thumbnails, corroborates that previews are different from thumbnails.

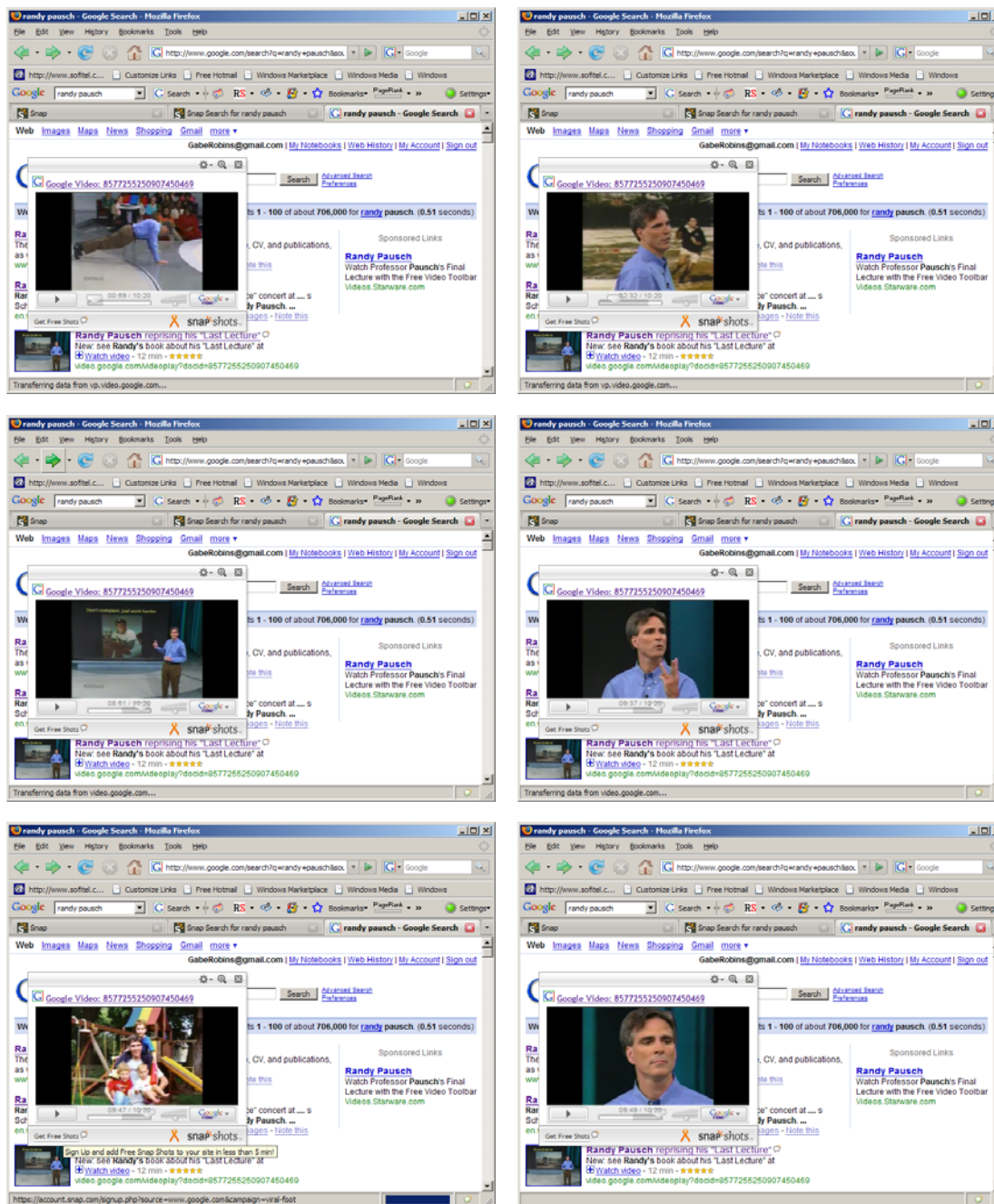
7.3 Previews Can Contain Live Streaming Videos

92. Continuing with this example, using the Snap Browser Add-On tool to perform a Google search on the term “Randy Pausch”, followed by moving the mouse over the search result “Randy Pausch reprising his Last Lecture”, yields a preview window containing a live streaming video feed, complete with fully functional video player buttons such as “Play”, “Stop”,

and sound volume control, as can be seen in the following screenshot (also reproduced in full-size in Exhibit 16):



93. The user can then interact with these video player buttons to play the video inside the Snap preview window, as evidenced by the following progression of screenshots showing the “Randy Pausch Last Lecture Reprise on the Oprah Show” video playing, captured at times 0:59, 2:32, 8:51, 9:37, 9:47, and 9:49 while this video was playing inside the Snap preview window (this series of figures is also reproduced in larger size in Exhibits 17 and 18):



94. This interactive live video capability of previews, which is completely lacking in thumbnails, corroborates that previews are different from thumbnails.

7.4 Previews Can Contain a Variety of Other Rich Content

95. The Snap Technologies previews can also contain a wide assortment of additional live and interactive content, such as audio tracks, interactive maps, scrollable photo albums, movie information, product reviews, social networking profiles, RSS feeds, stock quotes, financial market information, Wikipedia entries, video gaming information, etc. Information about the various kinds of rich-content in Snap previews can be found on the Web at <http://www.snap.com/snapshots.php#menu> and can be seen in the following screenshot (see Exhibit 23 for a larger version of this screenshot):

Snap Shots™ - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.snap.com/snapshots.php#menu

Google

http://www.softel.c... Customize Links Free Hotmail Windows Marketplace Windows Media Windows

Google Search RS Bookmarks PageRank Check AutoLink AutoFill Send to Settings

snapshots Help

PUBLISHERS AND BLOGGERS
A better user experience and an entirely new source of ad inventory.

WELCOME OVERVIEW MENU OF SHOTS SNAP SHARES SNAP SHOTS ENGAGE GOLD PUBLISHERS

The current menu of Snap Shots™

AudioShot™

AudioShot plays .mp3 files within a Shot and also displays information such as the track, the artist, the album art, etc., if they can be determined.

Move your cursor over the following link to try it.
<http://wiredset.com/.../Love-You-More.mp3>

MapShot™

MapShot is incredibly useful because it displays a Google Map in a Snap Shot. Just visit maps.google.com, type the address, click "Link to this page", and copy the URL.

Move your cursor over the following link to try it.
[130 W. Union Street, Pasadena, CA 91103](http://130.W.Union.Street.Pasadena.CA.91103)

MovieShot™

MovieShot provides pictures, biographies, and recent projects from IMDb pages on entertainment-related topics, including movies and TV, cast and crew.

Move your cursor over the following link to try it.
<http://imdb.com/name/nm0424060>

PhotoShot™

PhotoShot puts an entire online photo album into a Shot. PhotoShots can be triggered by links to files hosted on: Photobucket, Flickr, Picasa Web.

Move your cursor over the following link to try it.
<http://flickr.com/photos/.../345009210/>

PreviewShot™

PreviewShot, formerly known as Snap Preview Anywhere, shows a preview image of whatever site a link points to. This is the default behavior for any URLs that do not trigger other Shots.

Move your cursor over the following link to try it.
<http://idealab.com>

ProductShot™

ProductShot automatically shows the Amazon.com listing for a product.

Move your cursor over the following link to try it.
<http://www.amazon.com/dp/B00003CXS7/>

ProfileShot™

ProfileShot makes it easy to deliver the vital details of social network profiles — username, age, gender, location, tagline and a photo — in a convenient shot. MySpace is the first to be supported with many additional networks on the way.

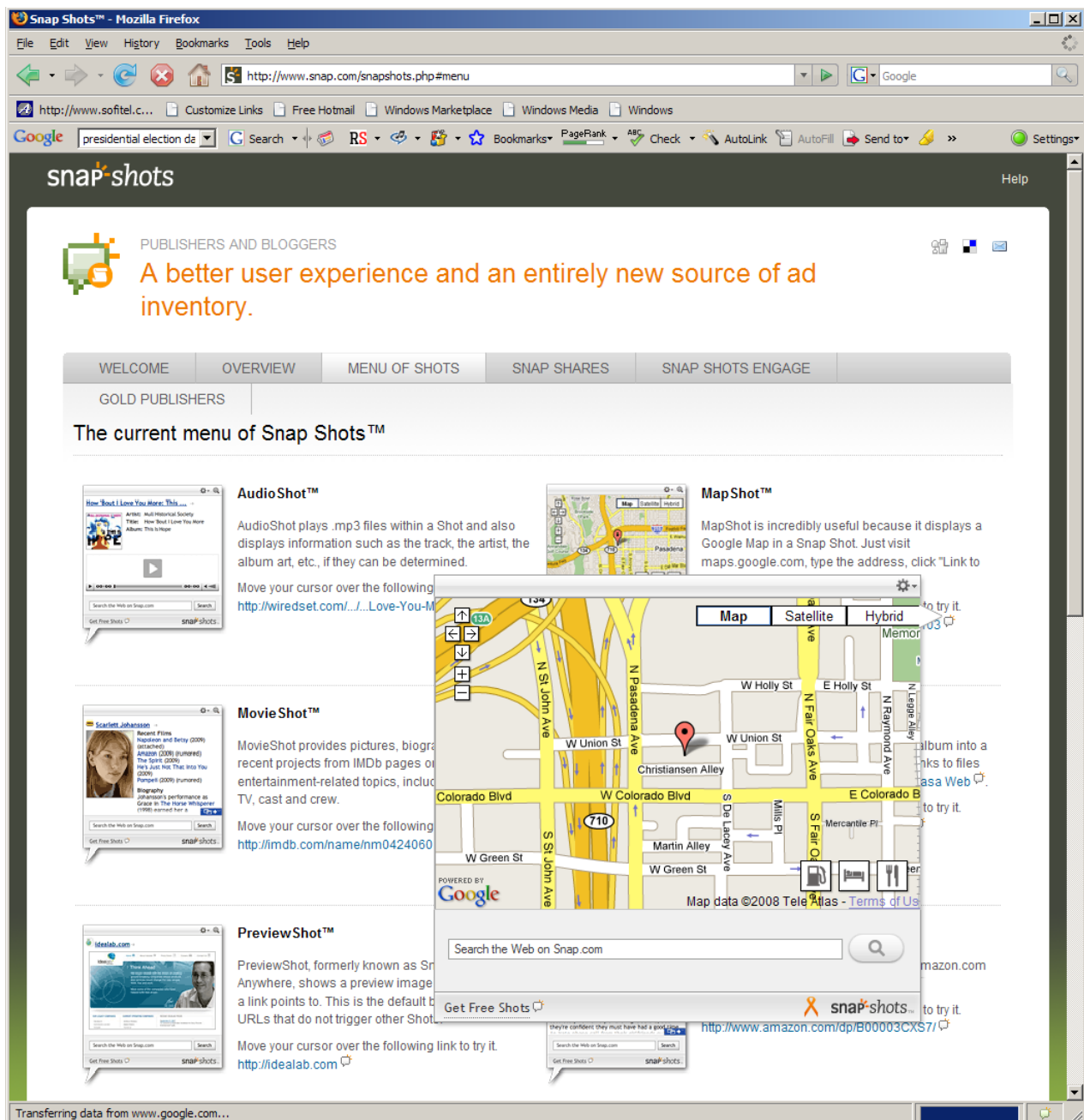
Move your cursor over the following link to try it.
<http://www.myspace.com/danecook>

RSS Shot™

RSS Shot automatically formats and displays the RSS feed of any site that publishes one, making it ideal for blogrolls. RSS Shot allows your users get a quick, text summary of another site's current content without leaving your site.

Move your cursor over the following link to try it.
<http://www.techcrunch.com>

96. The following is an example of the Snap “Map-shot” preview (available on the Web at <http://www.snap.com/snapshots.php#menu>), which provides an interactive map, complete with interactive buttons that enable a user to “zoom in”, “zoom out”, scroll, switch between views (street map, satellite image, and hybrid view), and highlight hotels, restaurants, gas stations, etc. (this figure is also reproduced in larger size in Exhibit 24):



97. The following is the same “Map shot” preview as above, after switching to “Satellite” view, with the local restaurants flag turned on, which shows the local restaurants using red markers (this figure is also reproduced in larger size in Exhibit 25):



98. Similarly to the Snap Technologies Browser Add-On tool, the Snap Classic and Snap Shots for Publishers/Bloggers tools can also generate and display these rich-content previews containing actual Web pages with text, Web links, audio and video feeds, etc. These interactive capabilities of previews again contrast and qualitatively differentiate them from traditional thumbnails, which completely lack this kind of versatility. This again qualitatively contrasts previews with thumbnails, with the latter entirely lacking this versatile functionality, since thumbnails are only small static images that are not imbued with the versatile interactivity of the Snap previews. In particular, this functionality offered by the Snap Classic, Snap Browser Add-On, and Snap Shots for Publishers/Bloggers services is completely lacking in the Girafa.com tool, nor are such functionalities claimed in the '904 Patent.

7.5 Previews Can Contain Other Previews

99. Yet another remarkable feature of previews that is lacking in thumbnails is that previews can in fact contain yet other previews (a phenomenon referred to as “recursion” in computer science). An example of this kind of complex “nesting” of previews within other previews is apparent when we start with the “Map Shot” example of the previous figure, and click on one of the red restaurant markers. This then causes yet another “sub preview” (the white bubble) to appear within the larger preview, showing the details of that particular restaurant, which happens to be the “Cheesecake Factory” in Pasadena, California. That “sub preview” yet in turn can be seen to contain additional live links (denoted by the underlined text), linking to Web pages offering further information about the “Cheesecake Factory” restaurant, including driving directions, operating hours, menu dishes, etc. (this figure is also reproduced in Exhibit 26):



100. Again, this rich level of versatility and interactivity, including the nesting of previews within other previews, is completely lacking with traditional thumbnails (and in the Girafa.com tool), but is easy to implement and natural to provide with previews. This corroborates again that previews are different from thumbnails.

7.6 Multiple Previews Can be Manipulated Independently

101. Using the Snap Browser Add-On tool, multiple previews can be generated for different entries/links on the same Web page, and all these previews can be independently manipulated by the user (i.e., moved, occluded, closed, regenerated, overlapped, played, interacted with, etc.). In other words, each preview behaves as if it was in its own window, independently of any other previews that may be simultaneously active along with it.

102. Combined with the other capabilities described above, this feature of previews can easily give rise to highly complex scenarios. For example, one preview can be playing a streaming video, another can be playing a song, while another preview at the same time can be displaying an RSS news feed, while yet a fourth simultaneous preview may be displaying an interactive map, with a fifth preview showing current stock prices, etc.

103. This versatile capability of multiple previews to be controlled, manipulated, and moved around by the user much like independent windows is completely lacking with traditional thumbnail-based approaches. In particular, this capability does not exist (even implicitly) in the Girafa.com tool, nor is it alluded to (even indirectly) anywhere in the '904 patent or its prosecution history.

104. An example of such a scenario, where multiple live previews simultaneously remain active in the Snap Browser Add-On tool while the user interacts with them, is illustrated by the following experiment. Here, I performed a Google search on the search phrase "time management". Then, I opened several previews, and dragged them off one at a time to different locations on the screen. This process eventually resulted in two different "time management" videos playing simultaneously (one with the volume turned off), along with an active RSS blog

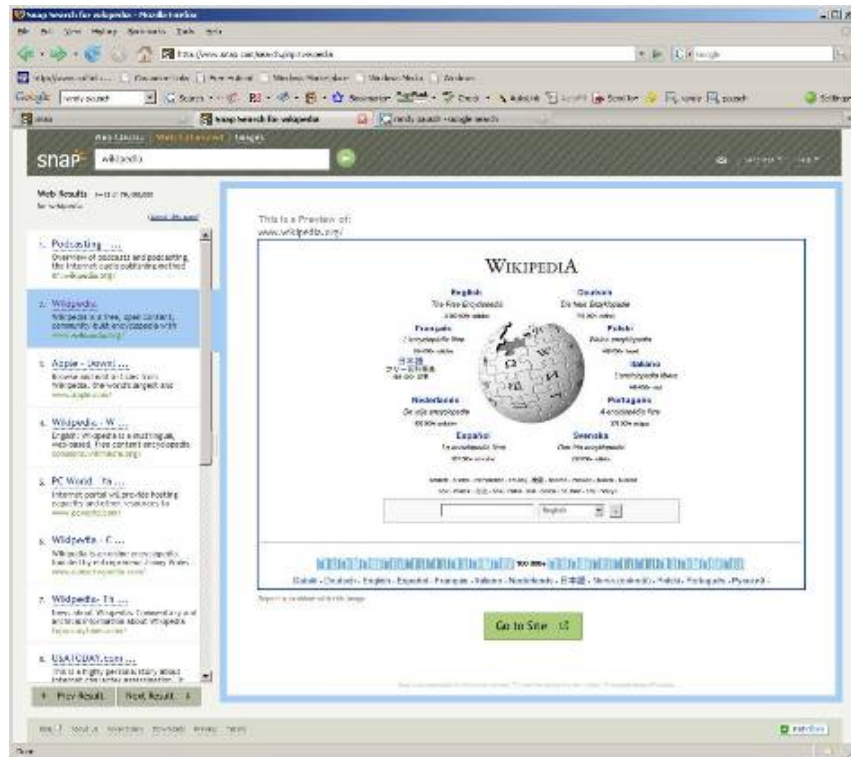


105. Also note in the figure above the size difference between the seven Snap previews and the two traditional thumbnails at the lower left-hand portion of the browser window. Indeed the two thumbnails in that window (which were generated by Google and not by the Snap tool) are substantially smaller than the seven Snap-generated previews on the right.

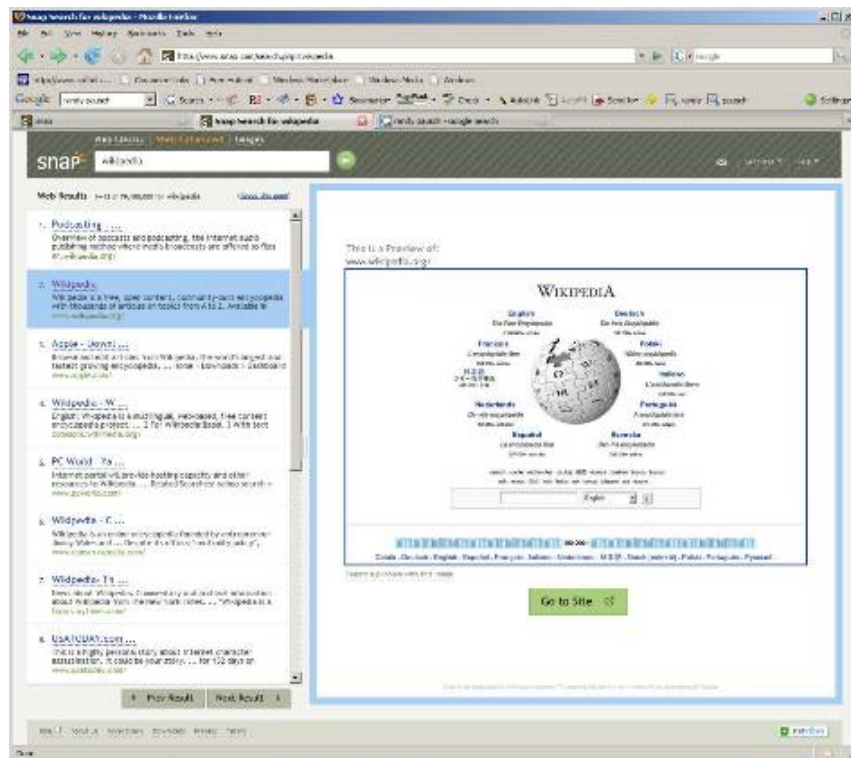
106. This last example showing multiple independent interactive previews with live content is an excellent illustration of how much more advanced the Snap Technologies products are than their competitors, in terms of functionality, versatility, and usability. This example also emphasizes how different the Snap Technologies products are than the '904 Patent, as well as from the Girafa.com tool, and indeed from any other system or tool that I am aware of.

7.7 Previews Can Dynamically Vary in Size

107. Another significant difference between previews and thumbnails is that while a given thumbnail is of fixed small size, a Snap preview can continuously vary in size. To see an example of this, consider the Snap Enhanced search on the term "Wikipedia", which yields the following screenshot with a preview image of size 760x487 pixels (also reproduced in larger size in Exhibit 20):

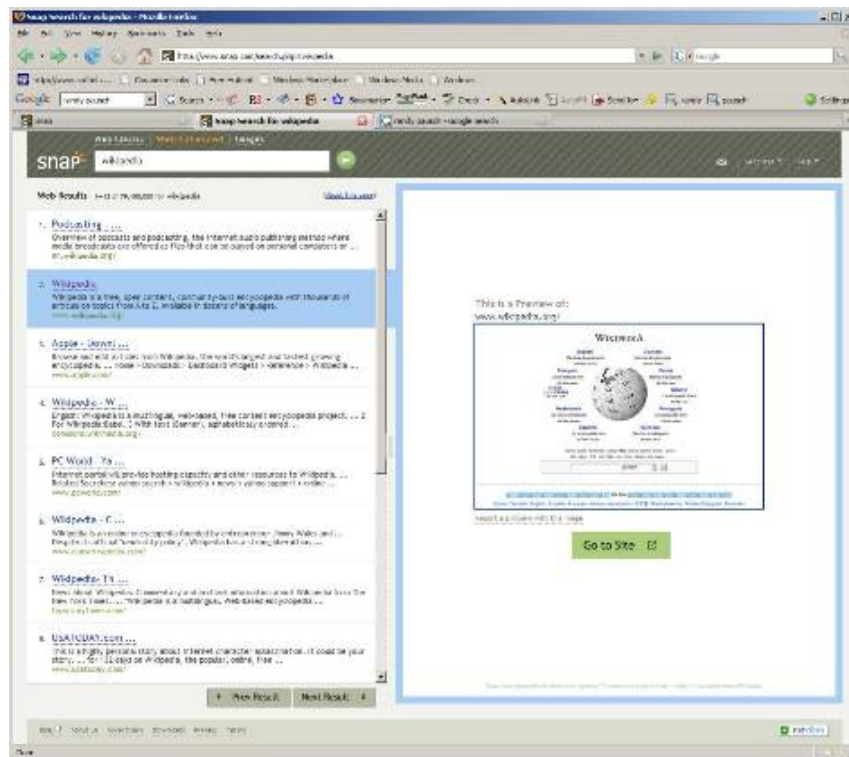


108. Using the mouse to drag to the right the vertical bar separating the two frames causes the preview image to shrink down from its original size of 760x487 pixels down to a smaller size of 640x410 pixels, as can be seen in the following screenshot (also reproduced in larger size in Exhibit 21):



109. This reduction in preview size, from an area of $760 \times 487 = 370,120$ pixels down to an area of $640 \times 410 = 262,400$ pixels, represents a 29% decrease in preview area.

110. Yet further dragging to the right the vertical bar separating the two frames causes the preview image to further shrink down, to the new size of 400×256 pixels, as can be seen in the following screenshot (also reproduced in larger size in Exhibit 22):



This last reduction in preview size, from an area of $640 \times 410 = 262,400$ pixels down to an area of $400 \times 256 = 102,400$ pixels, represents a 61% decrease in preview area, and an overall dramatic decrease of 72% in area as compared to its original size of $760 \times 487 = 370,120$ pixels.

111. The Snap Enhanced previews can vary not only among the three discrete sizes discussed above, but they can also vary in size continuously to any size across a broad range, based on how large the browser window is. This feature is enabled by clicking on the “Size” option for the “Preview Image:” field under the “Settings” menu of Snap Enhanced.

112. This capability of previews to change in size, either discretely or continuously, based on the size of the viewing window (as they do in the Snap Enhanced tool) does not exist in ordinary static thumbnails, and in particular this capability is not provided by the Girafa.com tool. Thus, aside from all the other differences between thumbnails and previews, this variable-size property of previews also serves to distinguish and separate them from thumbnails.

7.8 Summary of Differences Between Previews and Thumbnails

113. In summary, there are several significant and fundamental differences between previews and thumbnails, including but not limited to the following distinctions:

- (A) Previews are substantially larger than thumbnails;
- (B) Previews can be full-fledged interactive Web pages with live links and actual text, while thumbnails cannot;
- (C) Previews can contain a variety of rich content, including live streaming videos, audio, interactive maps, Web links to other content, etc., while thumbnails cannot;
- (D) Previews can contain yet other previews in an arbitrarily nested fashion, while thumbnails cannot;
- (E) Multiple previews can be manipulated independently much like windows, while thumbnails do not possess this kind of versatility; and
- (F) Previews can dynamically vary in size, both discretely and continuously, while thumbnails are of fixed size.

114. In particular, the previews provided by the Snap Enhanced tool are differentiated from thumbnails by at least two of the fundamental criteria listed above, namely (A) and (F). Moreover, all the previews provided by the Snap Enhanced tool are significantly larger than any thumbnails that have been discussed or taught by dozens of published references and prior art, including numerous papers, books, and issued patents. The previews provided by the Snap Enhanced tool are therefore not thumbnails.

8 Detailed Claim Infringement Analysis

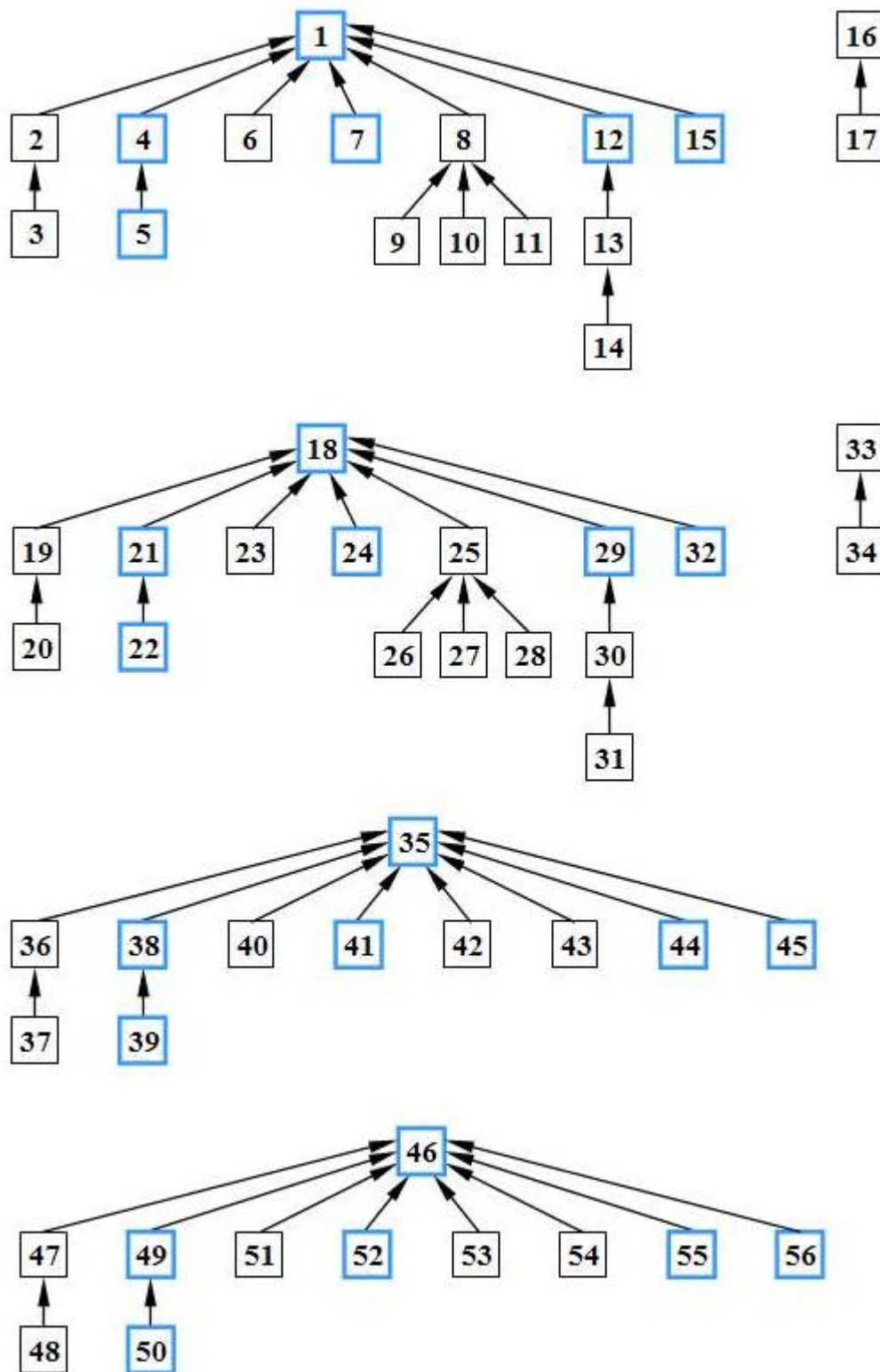
115. Dr. Myers asserted that he believes that Snap Classic from Snap Technologies, Inc., allegedly infringes on claims 1, 4, 5, 7, 12, 15, 18, 21, 22, 24, 29, 32, 35, 38, 39, 41, 44, 45, 46, 49, 50, 52, 55, and 56 of the '904 patent, that Snap Enhanced from Snap Technologies, Inc., allegedly infringes on claims 1, 4, 7, 12, 18, 21, 24, 29, 35, 38, 41, 44, 46, 49, 52, and 55 of the '904 patent, and that the Snap Shots Browser Add-On and Snap Shots for Publishers/Bloggers tools from Snap Technologies, Inc. allegedly infringe claims 35, 38, 39, 41, 45, 46, 49, 50, 52, and 56 of the '904 patent. [Myers Declaration, Page 1]. These alleged infringements asserted by Dr. Myers are summarized in the following tables:

Snap Service	The '904 claims allegedly infringed by each service as asserted by Dr. Myers											
Classic:	1	4	5	7	12	15	18	21	22	24	29	32
Enhanced:	1	4		7	12		18	21		24	29	
Add-On:												
Publisher:												

Snap Service	The '904 claims allegedly infringed by each service as asserted by Dr. Myers											
Classic:	35	38	39	41	44	45	46	49	50	52	55	56
Enhanced:	35	38		41	44		46	49		52	55	
Add-On:	35	38	39	41		45	46	49	50	52		56
Publisher:	35	38	39	41		45	46	49	50	52		56

This chart shows the correspondence between the '904 claims and the alleged infringements by each service, as asserted by Dr. Myers [Myers Declaration, Page 1]. Because the Snap Browser Add-On tool and the Snap Shots for Publishers/Bloggers service function in the same manner as Snap Classic, my analysis for Snap Classic likewise equally applies to the Snap Browser Add-On tool and to Snap Shots for Publishers/Bloggers unless indicated otherwise.

116. In this section I will address each of these infringement assertions separately. To aid the analyses and to better understand the dependencies of the various claims on each other, I created the following diagram, depicting all 56 claims of the '904 Patent and their dependencies (the full-size version of this figure is given in Exhibit 5):



The diagram above depicts the dependencies among the claims of the '904 Patent. An arrow from one claim to another indicates a dependency. The independent claims are 1, 16, 18, 33, 35, and 46, while the rest are dependent claims. The thick / blue squares denote claims that are asserted by Dr. Myers to be infringed by Snap Technologies, Inc.

8.1 Claim 1 of the ‘904 Patent

117. Dr. Myers asserted that the Snap Classic and Snap Enhanced services from Snap Technologies, Inc., infringe claim 1 of the ‘904 Patent [Myers Declaration, Page 1], which is reproduced below:

“ 1. A method for presenting Internet information to a user comprising:
providing to a user a visual image of a web page containing at least one hyperlink; and at least partially concurrently
providing a thumbnail visual image of the home page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image server that stores and provides said thumbnail visual image.”

8.1.1 Claim 1 / Snap Classic

118. As discussed above in Section 6.1 of this Declaration, the Snap Classic service does not provide a Web page “partially concurrently” along with previews, and thus does not satisfy the “providing ... at least partially concurrently” limitation of Claim 1. Therefore, the Snap Classic service does not infringe Claim 1 of the ‘904 Patent.

8.1.2 Claim 1 / Snap Enhanced

119. As shown by the analysis above in Section 7 of this Declaration, the Snap Enhanced service provides previews rather than thumbnails, and thus does not satisfy this limitation of Claim 1. Therefore, the Snap Enhanced service does not infringe Claim 1 of the ‘904 Patent.

8.2 Claim 4 of the ‘904 Patent

120. Dr. Myers asserted that the Snap Classic and Snap Enhanced services from Snap Technologies, Inc., infringe claim 4 of the ‘904 Patent, which is reproduced below:

“ 4. A method according to claim 1 and wherein said thumbnail visual image is displayed within the visual image of said web page.”

8.2.1 Claim 4 / Snap Classic

121. Claim 4 is dependent on Claim 1 of the ‘904 Patent. Since the Snap Classic service does not infringe Claim 1, it therefore also does not infringe Claim 4 of the ‘904 Patent.

122. The Snap Classic service does not display previews “within the visual image of said web page”, as discussed above in Section 6.2 of this Declaration, and thus does not satisfy this limitation of Claim 4. Therefore, the Snap Classic service does not infringe Claim 4 of the ‘904 Patent.

123. For at least the two reasons given here, the Snap Classic service does not infringe Claim 4 of the ‘904 Patent.

8.2.2 Claim 4 / Snap Enhanced

124. Claim 4 is dependent on Claim 1 of the ‘904 Patent. Since the Snap Enhanced service does not infringe Claim 1, it therefore also does not infringe Claim 4 of the ‘904 Patent.

8.3 Claim 5 of the ‘904 Patent

125. Dr. Myers asserted that the Snap Classic service from Snap Technologies, Inc., infringes Claim 5 of the ‘904 Patent, which is reproduced below:

“ **5.** A method according to claim **4** and wherein said thumbnail visual image appears hovering over said hyperlink.”

8.3.1 Claim 5 / Snap Classic

126. Claim 5 is dependent on Claim 4 of the ‘904 Patent. Since the Snap Classic service does not infringe Claim 4, it therefore also does not infringe Claim 5 of the ‘904 Patent.

8.4 Claim 7 of the ‘904 Patent

127. Dr. Myers asserted that the Snap Classic and Snap Enhanced services from Snap Technologies, Inc., infringe claim 7 of the ‘904 Patent, which is reproduced below:

“ **7.** A “method according to claim **1** and wherein said web page comprises an HTML page.”

8.4.1 Claim 7 / Snap Classic

128. Claim 7 is dependent on Claim 1 of the ‘904 Patent. Since the Snap Classic service does not infringe Claim 1, it therefore also does not infringe Claim 7 of the ‘904 Patent.

8.4.2 Claim 7 / Snap Enhanced

129. Claim 7 is dependent on Claim 1 of the ‘904 Patent. Since the Snap Enhanced service does not infringe Claim 1, it therefore also does not infringe Claim 7 of the ‘904 Patent.

8.5 Claim 12 of the ‘904 Patent

130. Dr. Myers asserted that the Snap Classic and Snap Enhanced services from Snap Technologies, Inc., infringe claim 12 of the ‘904 Patent, which is reproduced below:

“ **12.** A method according to claim **1** and wherein said

providing a-thumbnail visual image comprises:
employing a web browser which interfaces via the Internet
with a web server including visualization functionality.”

8.5.1 Claim 12 / Snap Classic

131. Claim 12 is dependent on Claim 1 of the ‘904 Patent. Since the Snap Classic service does not infringe Claim 1, it therefore also does not infringe Claim 12 of the ‘904 Patent.

8.5.2 Claim 12 / Snap Enhanced

132. Claim 12 is dependent on Claim 1 of the ‘904 Patent. Since the Snap Enhanced service does not infringe Claim 1, it therefore also does not infringe Claim 12 of the ‘904 Patent.

8.6 Claim 15 of the ‘904 Patent

133. Dr. Myers asserted that the Snap Classic service from Snap Technologies, Inc., infringes Claim 15 of the ‘904 Patent, which is reproduced below:

“ **15.** A method according to claim **1** and wherein said thumbnail visual image appears hovering over said hyperlink.”

8.6.1 Claim 15 / Snap Classic

134. Claim 15 is dependent on Claim 1 of the ‘904 Patent. Since the Snap Classic service does not infringe Claim 1, it therefore also does not infringe Claim 15 of the ‘904 Patent.

8.7 Claim 18 of the ‘904 Patent

135. Dr. Myers asserted that the Snap Classic and Snap Enhanced services from Snap Technologies, Inc., infringe Claim 18 of the ‘904 Patent, which is reproduced below:

“ **18.** A system for presenting Internet information to a user comprising:
first functionality providing to a user a visual image of a web page containing at least one hyperlink; and
second functionality operative at least partially concurrently with said first functionality for providing a thumbnail visual image of the home page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image server that stores and provides said thumbnail visual image.”

8.7.1 Claim 18 / Snap Classic

136. As discussed above in Section 6.1 of this Declaration, the Snap Classic service does not perform the function of providing a Web page “at least partially concurrently” with a preview, and thus does not meet the “providing ... at least partially concurrently” limitation of Claim 18. Therefore, the Snap Classic service does not infringe Claim 18 of the ‘904 Patent.

8.7.2 Claim 18 / Snap Enhanced

137. As shown by the analysis above in Section 7 of this Declaration, the Snap Enhanced service provides previews rather than thumbnails, and thus does not satisfy this limitation of Claim 18. Therefore, the Snap Enhanced service does not infringe Claim 18 of the ‘904 Patent.

8.8 Claim 21 of the ‘904 Patent

138. Dr. Myers asserted that the Snap Classic and Snap Enhanced services from Snap Technologies, Inc., infringe Claim 21 of the ‘904 Patent, which is reproduced below:

“ **21.** A system according to claim **18** and wherein said

thumbnail visual image is displayed within the visual image of said web page.”

8.8.1 Claim 21 / Snap Classic

139. Claim 21 is dependent on Claim 18 of the ‘904 Patent. Since the Snap Classic service does not infringe Claim 18, it therefore also does not infringe Claim 21 of the ‘904 Patent.

140. Snap Classic does not display previews “within the visual image of said web page”, as discussed above in Section 6.2 of this Declaration, and thus does not satisfy this limitation of Claim 21. Therefore, the Snap Classic service does not infringe Claim 21 of the ‘904 Patent.

141. For at least the two reasons given here, the Snap Classic service does not infringe Claim 21 of the ‘904 Patent.

8.8.2 Claim 21 / Snap Enhanced

142. Claim 21 is dependent on Claim 18 of the ‘904 Patent. Since the Snap Enhanced service does not infringe Claim 18, it therefore also does not infringe Claim 21 of the ‘904 Patent.

8.9 Claim 22 of the ‘904 Patent

143. Dr. Myers asserted that the Snap Classic service from Snap Technologies, Inc., infringes Claim 22 of the ‘904 Patent, which is reproduced below:

“ **22.** A system according to claim **21** and wherein said thumbnail visual image appears hovering over said hyperlink.”

8.9.1 Claim 22 / Snap Classic

144. Claim 22 is dependent on Claim 21 of the '904 Patent. Since Snap Classic does not infringe Claim 21, it therefore also does not infringe Claim 22 of the '904 Patent.

8.10 Claim 24 of the '904 Patent

145. Dr. Myers asserted that he believes that the Snap Classic and Snap Enhanced services from Snap Technologies, Inc., infringe Claim 24 of the '904 Patent, which is reproduced below:

“ **24.** A system according to claim **18** and wherein said web page comprises an HTML page.”

8.10.1 Claim 24 / Snap Classic

146. Claim 24 is dependent on Claim 18 of the '904 Patent. Since Snap Classic does not infringe Claim 18, it therefore also does not infringe Claim 24 of the '904 Patent.

8.10.2 Claim 24 / Snap Enhanced

147. Claim 24 is dependent on Claim 18 of the '904 Patent. Since Snap Enhanced does not infringe Claim 18, it therefore also does not infringe Claim 24 of the '904 Patent.

8.11 Claim 29 of the '904 Patent

148. Dr. Myers asserted that the Snap Classic and Snap Enhanced services from Snap Technologies, Inc., infringe Claim 29 of the '904 Patent, which is reproduced below:

“ **29.** A system according to claim **18** and wherein said

second functionality comprises fourth functionality employing a web browser which interfaces via the Internet with a web server including visualization functionality.”

8.11.1 Claim 29 / Snap Classic

149. Claim 29 is dependent on Claim 18 of the ‘904 Patent. Since Snap Classic does not infringe Claim 18, it therefore also does not infringe Claim 29 of the ‘904 Patent.

8.11.2 Claim 29 / Snap Enhanced

150. Claim 29 is dependent on Claim 18 of the ‘904 Patent. Since Snap Enhanced does not infringe Claim 18, it therefore also does not infringe Claim 29 of the ‘904 Patent.

8.12 Claim 32 of the ‘904 Patent

151. Dr. Myers asserted that he believes that the Snap Classic service from Snap Technologies, Inc., infringes Claim 32 of the ‘904 Patent, which is reproduced below:

“ **32.** A system according to claim **18** and wherein said thumbnail visual image appears hovering over said hyperlink.”

8.12.1 Claim 32 / Snap Classic

152. Claim 32 is dependent on Claim 18 of the ‘904 Patent. Since Snap Classic does not infringe Claim 18, it therefore also does not infringe Claim 32 of the ‘904 Patent.

8.13 Claim 35 of the ‘904 Patent

153. Dr. Myers asserted that the Snap Classic, Snap Enhanced, and Snap Browser Add-On services from Snap Technologies, Inc. infringe Claim 35 of the ‘904 Patent, which is reproduced below:

“ **35.** A method for presenting Internet information to a user comprising:
 providing to a user a visual image of a web page containing at least one hyperlink; and at least partially concurrently
 providing a thumbnail visual image of another web page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image server that stores and provides said thumbnail visual image,
 said providing a thumbnail visual image comprising employing a web browser which interfaces via the Internet with a web server, separated from said image server, including visualization functionality, said visualization functionality being operative to embed commands to the web browser to download, via said image server, thumbnail visual images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.”

154. In addition, it is my understanding from Girafa’s Opening Brief in Support of its Preliminary Injunction Motion that Girafa asserts that Snap Technologies, Inc.’s service for “website owners” also infringes Claim 35 of the ‘904 Patent by either contributory infringement or inducement of infringement, as well as directly.

8.13.1 Claim 35 / Snap Classic

155. As discussed above in Section 6.1 of this Declaration, the Snap Classic service does not provide a Web page “partially concurrently” along with previews, and thus does not

satisfy the “providing ... at least partially concurrently providing” limitation of Claim 35. Therefore, the Snap Classic service does not infringe Claim 35 of the ‘904 Patent.

156. As discussed above in Section 6.4 of this Declaration, the Snap Classic service does not provide an annotated Web page, and thus does not satisfy the “annotated web page” limitation of Claim 35. Therefore, the Snap Classic service does not infringe Claim 35 of the ‘904 Patent.

157. For at least the two reasons given here, the Snap Classic service does not infringe Claim 35 of the ‘904 Patent.

8.13.2 Claim 35 / Snap Enhanced

158. As shown by the analysis above in Section 7 of this Declaration, the Snap Enhanced service provides previews rather than thumbnails, and thus does not satisfy this limitation of Claim 35. Therefore, the Snap Enhanced service does not infringe Claim 35 of the ‘904 Patent.

8.13.3 Claim 35 / Snap Browser Add-On

159. As discussed above in Section 6.1 of this Declaration, the Snap Browser Add-On service does not provide a Web page “partially concurrently” along with previews, and thus does not satisfy the “providing ... at least partially concurrently providing” limitation of Claim 35. Therefore, the Snap Browser Add-On service does not infringe Claim 35 of the ‘904 Patent.

160. As discussed above in Section 6.4 of this Declaration, the Snap Browser Add-On service, does not provide an annotated Web page, and thus does not satisfy the “annotated web

page” limitation of Claim 35. Therefore, the Snap Browser Add-On service does not infringe Claim 35 of the ‘904 Patent.

161. For at least the two reasons given here, the Snap Browser Add-On service does not infringe Claim 35 of the ‘904 Patent.

8.13.4 Claim 35 / Snap Publishers/Bloggers

162. As discussed earlier in this Declaration, the functionality for the end user of the Snap Shots for Publishers/Bloggers service is essentially identical to that of the Snap Browser Add-On tool. Therefore, for the same reasons that the Snap Add-On tool does not infringe claim 35 of the ‘904 Patent, the Snap Shots Publisher/Blogger Service likewise does not infringe claim 35 of the ‘904 Patent.

8.14 Claim 38 of the ‘904 Patent

163. Dr. Myers asserted that the Snap Classic, Snap Enhanced, and Snap Browser Add-On services from Snap Technologies, Inc., infringe Claim 38 of the ‘904 Patent, which is reproduced below:

“ **38.** A method according to claim **35** and wherein said thumbnail visual image is displayed within the visual image of said web page.”

164. In addition, it is my understanding from Girafa’s Opening Brief in Support of its Preliminary Injunction Motion that Girafa asserts that Snap Technologies, Inc.’s service for “website owners” also infringes Claim 38 of the ‘904 Patent by either contributory infringement or inducement of infringement, as well as directly.

8.14.1 Claim 38 / Snap Classic

165. Claim 38 is dependent on Claim 35 of the '904 Patent. Since the Snap Classic service does not infringe Claim 35, it therefore also does not infringe Claim 38 of the '904 Patent.

166. The Snap Classic service also does not display previews “within the visual image of said web page”, as discussed above in Section 6.2 of this Declaration, and thus does not satisfy this limitation of Claim 38. Therefore, the Snap Classic service does not infringe Claim 38 of the '904 Patent.

167. For at least the two reasons given here, the Snap Classic service does not infringe Claim 38 of the '904 Patent.

8.14.2 Claim 38 / Snap Enhanced

168. Claim 38 is dependent on Claim 35 of the '904 Patent. Since the Snap Enhanced service does not infringe Claim 35, it therefore also does not infringe Claim 38 of the '904 Patent.

8.14.3 Claim 38 / Snap Browser Add-On

169. Claim 38 is dependent on Claim 35 of the '904 Patent. Since the Snap Browser Add-On service does not infringe Claim 35, it therefore also does not infringe Claim 38 of the '904 Patent.

170. The Snap Browser Add-On service does not display previews “within the visual image of said web page”, as discussed above in Section 6.2 of this Declaration, and thus does not

satisfy this limitation of Claim 38. Therefore, the Snap Browser Add-On service does not infringe Claim 38 of the '904 Patent.

171. For at least the two reasons given here, the Snap Browser Add-On service does not infringe Claim 38 of the '904 Patent.

8.14.4 Claim 38 / Snap Publishers/Bloggers

172. As discussed earlier in this Declaration, the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. Therefore, for the same reasons that the Snap Add-On tool does not infringe claim 38 of the '904 Patent, the Snap Shots Publisher/Blogger Service likewise does not infringe claim 38 of the '904 Patent.

8.15 Claim 39 of the '904 Patent

173. Dr. Myers asserted that the Snap Classic and Snap Browser Add-On services from Snap Technologies, Inc. infringe Claim 39 of the '904 Patent, which is reproduced below:

“ **39.** A method according to claim **38** and wherein said thumbnail visual image appears hovering over said hyperlink.”

174. In addition, it is my understanding from Girafa's Opening Brief in Support of its Preliminary Injunction Motion that Girafa asserts that Snap Technologies, Inc.'s service for “website owners” also infringes Claim 39 of the '904 Patent by either contributory infringement or inducement of infringement, as well as directly.

8.15.1 Claim 39 / Snap Classic

175. Claim 39 is dependent on Claim 38 of the '904 Patent. Since the Snap Classic service does not infringe Claim 38, it therefore also does not infringe Claim 39 of the '904 Patent.

8.15.2 Claim 39 / Snap Browser Add-On

176. Claim 39 is dependent on Claim 38 of the '904 Patent. Since the Snap Browser Add-On service does not infringe Claim 38, it therefore also does not infringe Claim 39 of the '904 Patent.

8.15.3 Claim 39 / Snap Publishers/Bloggers

177. As discussed earlier in this Declaration, the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. Therefore, for the same reasons that the Snap Add-On tool does not infringe claim 39 of the '904 Patent, the Snap Shots Publisher/Blogger Service likewise does not infringe claim 39 of the '904 Patent.

8.16 Claim 41 of the '904 Patent

178. Dr. Myers asserted that the Snap Classic, Snap Enhanced, and Snap Browser Add-On services from Snap Technologies, Inc., infringe Claim 41 of the '904 Patent, which is reproduced below:

“ **41. A** method according to claim **35** and wherein said web page comprises an HTML page.”

179. In addition, it is my understanding from Girafa's Opening Brief in Support of its Preliminary Injunction Motion that Girafa asserts that Snap Technologies, Inc.'s service for "website owners" also infringes Claim 41 of the '904 Patent by either contributory infringement or inducement of infringement, as well as directly.

8.16.1 Claim 41 / Snap Classic

180. Claim 41 is dependent on Claim 35 of the '904 Patent. Since the Snap Classic service does not infringe Claim 35, it therefore also does not infringe Claim 41 of the '904 Patent.

8.16.2 Claim 41 / Snap Enhanced

181. Claim 41 is dependent on Claim 35 of the '904 Patent. Since the Snap Enhanced service does not infringe Claim 35, it therefore also does not infringe Claim 41 of the '904 Patent.

8.16.3 Claim 41 / Snap Browser Add-On

182. Claim 41 is dependent on Claim 35 of the '904 Patent. Since the Snap Browser Add-On service does not infringe Claim 35, it therefore also does not infringe Claim 41 of the '904 Patent.

8.16.4 Claim 41 / Snap Publishers/Bloggers

183. As discussed earlier in this Declaration, the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. Therefore, for

the same reasons that the Snap Add-On tool does not infringe claim 41 of the '904 Patent, the Snap Shots Publisher/Blogger Service likewise does not infringe claim 41 of the '904 Patent.

8.17 Claim 44 of the '904 Patent

184. Dr. Myers asserted that the Snap Classic and Snap Enhanced services from Snap Technologies, Inc., infringe Claim 44 of the '904 Patent, which is reproduced below:

“ **44.** A method according to claim **35** and wherein said visualization functionality comprises:
receiving a list of hyperlinks;
splitting a URL of each hyperlink into URL components
including at least a path component and a host component;
trimming a path component based on the consideration of
finding the most representative image of a given web
page; and
constructing a new URL including a trimmed path component.”

8.17.1 Claim 44 / Snap Classic

185. Claim 44 is dependent on Claim 35 of the '904 Patent. Since the Snap Classic service does not infringe Claim 35, it therefore also does not infringe Claim 44 of the '904 Patent.

186. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Classic service does not perform any splitting of URLs, and thus does not meet this limitation of Claim 44. Therefore, the Snap Classic service does not infringe Claim 44 of the '904 Patent.

187. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Classic service does not perform any “trimming a path component” operation on URLs, and thus does not meet this limitation of Claim 44. Therefore, the Snap Classic service does not infringe Claim 44 of the '904 Patent.

188. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Classic service does not perform any “constructing a new URL including a trimmed path component” operations, and thus does not meet this limitation of Claim 44. Therefore, the Snap Classic service does not infringe Claim 44 of the ‘904 Patent.

189. For at least the four reasons given here, the Snap Classic service does not infringe Claim 44 of the ‘904 Patent.

8.17.2 Claim 44 / Snap Enhanced

190. Claim 44 is dependent on Claim 35 of the ‘904 Patent. Since the Snap Enhanced service does not infringe Claim 35, it therefore also does not infringe Claim 44 of the ‘904 Patent.

191. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Enhanced service does not perform any splitting of URLs, and thus does not meet this limitation of Claim 44. Therefore, the Snap Enhanced service does not infringe Claim 44 of the ‘904 Patent.

192. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Enhanced service does not perform any “trimming a path component” operation on URLs, and thus does not meet this limitation of Claim 44. Therefore, the Snap Enhanced service does not infringe Claim 44 of the ‘904 Patent.

193. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Enhanced service does not perform any “constructing a new URL including a trimmed path component” operations, and thus does not meet this limitation of Claim 44. Therefore, the Snap Enhanced service does not infringe Claim 44 of the ‘904 Patent.

194. For at least the four reasons given here, the Snap Enhanced service does not infringe Claim 44 of the '904 Patent.

8.18 Claim 45 of the '904 Patent

195. Dr. Myers asserted that the Snap Classic and Snap Browser Add-On services from Snap Technologies, Inc. infringe Claim 45 of the '904 Patent, which is reproduced below:

“ **45.** A method according to claim **35** and wherein said thumbnail visual image appears hovering over said hyperlink.”

196. In addition, it is my understanding from Girafa's Opening Brief in Support of its Preliminary Injunction Motion that Girafa asserts that Snap Technologies, Inc.'s service for “website owners” also infringes Claim 45 of the '904 Patent by either contributory infringement or inducement of infringement, as well as directly.

8.18.1 Claim 45 / Snap Classic

197. Claim 45 is dependent on Claim 35 of the '904 Patent. Since the Snap Classic service does not infringe Claim 35, it therefore also does not infringe Claim 45 of the '904 Patent.

8.18.2 Claim 45 / Snap Browser Add-On

198. Claim 45 is dependent on Claim 35 of the '904 Patent. Since the Snap Browser Add-On service does not infringe Claim 35, it therefore also does not infringe Claim 45 of the '904 Patent.

8.18.3 Claim 45 / Snap Publishers/Bloggers

199. As discussed earlier in this Declaration, the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. Therefore, for the same reasons that the Snap Add-On tool does not infringe claim 45 of the '904 Patent, the Snap Shots Publisher/Blogger Service likewise does not infringe claim 45 of the '904 Patent.

8.19 Claim 46 of the '904 Patent

200. Dr. Myers asserted that the Snap Classic, Snap Enhanced, and Snap Browser Add-On services from Snap Technologies, Inc. infringe Claim 46 of the '904 Patent, which is reproduced below:

“ **46.** A system for presenting Internet information to a user comprising:
 first functionality providing to a user a visual image of a web page containing at least one hyperlink; and
 second functionality operative at least partially concurrently with said first functionality for providing a thumbnail visual image of another web page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image server that stores and provides said thumbnail visual image, said second functionality comprising third functionality employing a web browser which interfaces via the Internet with a web server, separated from said image server, including visualization functionality, said visualization functionality being operative to embed commands to the web browser to download, via said image server, thumbnail visual images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.”

201. In addition, it is my understanding from Girafa's Opening Brief in Support of its Preliminary Injunction Motion that Girafa asserts that Snap Technologies, Inc.'s service for

“website owners” also infringes Claim 46 of the ‘904 Patent by either contributory infringement or inducement of infringement, as well as directly.

8.19.1 Claim 46 / Snap Classic

202. As discussed above in Section 6.1 of this Declaration, the Snap Classic service does not perform the function of providing a Web page “at least partially concurrently” with a preview, and thus does not satisfy the “providing ... at least partially concurrently” limitation of Claim 46. Therefore, the Snap Classic service does not infringe Claim 46 of the ‘904 Patent.

203. As discussed above in Section 6.4 of this Declaration, the Snap Classic service does not provide an annotated Web page, and thus does not satisfy the “annotated web page” limitation of Claim 46. Therefore, the Snap Classic service does not infringe Claim 46 of the ‘904 Patent.

204. For at least the two reasons given here, the Snap Classic service does not infringe Claim 46 of the ‘904 Patent.

8.19.2 Claim 46 / Snap Enhanced

205. As shown by the analysis above in Section 7 of this Declaration, the Snap Enhanced service provides previews rather than thumbnails, and thus does not satisfy this limitation of Claim 46. Therefore, the Snap Enhanced service does not infringe Claim 46 of the ‘904 Patent.

8.19.3 Claim 46 / Snap Browser Add-On

206. As discussed above in Section 6.1 of this Declaration, the Snap Browser Add-On service does not perform the function of providing a Web page “at least partially concurrently”

with a preview, and thus does not satisfy the “providing ... at least partially concurrently” limitation of Claim 46. Therefore, the Snap Browser Add-On service does not infringe Claim 46 of the ‘904 Patent.

207. As discussed above in Section 6.4 of this Declaration, the Snap Browser Add-On service does not provide an annotated Web page, and thus does not satisfy the “annotated web page” limitation of Claim 46. Therefore, the Snap Browser Add-On service does not infringe Claim 46 of the ‘904 Patent.

208. For at least the two reasons given here, the Snap Browser Add-On service does not infringe Claim 46 of the ‘904 Patent.

8.19.4 Claim 46 / Snap Publishers/Bloggers

209. As discussed earlier in this Declaration, the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. Therefore, for the same reasons that the Snap Add-On tool does not infringe claim 46 of the ‘904 Patent, the Snap Shots Publisher/Blogger Service likewise does not infringe claim 46 of the ‘904 Patent.

8.20 Claim 49 of the ‘904 Patent

210. Dr. Myers asserted that the Snap Classic, Snap Enhanced, and Snap Browser Add-On services from Snap Technologies, Inc. infringe Claim 49 of the ‘904 Patent, which is reproduced below:

“ **49.** A system according to claim **46** and wherein said thumbnail visual image is displayed within the visual image of said web page.”

211. In addition, it is my understanding from Girafa's Opening Brief in Support of its Preliminary Injunction Motion that Girafa asserts that Snap Technologies, Inc.'s service for "website owners" also infringes Claim 49 of the '904 Patent by either contributory infringement or inducement of infringement, as well as directly.

8.20.1 Claim 49 / Snap Classic

212. Claim 49 is dependent on Claim 46 of the '904 Patent. Since the Snap Classic service does not infringe Claim 46, it therefore also does not infringe Claim 49 of the '904 Patent.

213. The Snap Classic service does not display previews "within the visual image of said web page", as discussed above in Section 6.2 of this Declaration, and thus does not satisfy this limitation of Claim 49. Therefore, the Snap Classic service does not infringe Claim 49 of the '904 Patent.

214. For at least the two reasons given here, the Snap Classic service does not infringe Claim 49 of the '904 Patent.

8.20.2 Claim 49 / Snap Enhanced

215. Claim 49 is dependent on Claim 46 of the '904 Patent. Since the Snap Enhanced service does not infringe Claim 46, it therefore also does not infringe Claim 49 of the '904 Patent.

8.20.3 Claim 49 / Snap Browser Add-On

216. Claim 49 is dependent on Claim 46 of the '904 Patent. Since the Snap Browser Add-On service does not infringe Claim 46, it therefore also does not infringe Claim 49 of the '904 Patent.

217. The Snap Browser Add-On service does not display previews “within the visual image of said web page”, as discussed above in Section 6.2 of this Declaration, and thus does not satisfy this limitation of Claim 49. Therefore, the Snap Browser Add-On service does not infringe Claim 49 of the '904 Patent.

218. For at least the two reasons given here, the Snap Browser Add-On service does not infringe Claim 49 of the '904 Patent.

8.20.4 Claim 49 / Snap Publishers/Bloggers

219. As discussed earlier in this Declaration, the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. Therefore, for the same reasons that the Snap Add-On tool does not infringe claim 49 of the '904 Patent, the Snap Shots Publisher/Blogger Service likewise does not infringe claim 49 of the '904 Patent.

8.21 Claim 50 of the '904 Patent

220. Dr. Myers asserted that the Snap Classic and Snap Browser Add-On services from Snap Technologies, Inc. infringe Claim 50 of the '904 Patent, which is reproduced below:

“ **50.** A system according to claim **49** and wherein said thumbnail visual image appears hovering over said hyper-link.”

221. In addition, it is my understanding from Girafa's Opening Brief in Support of its Preliminary Injunction Motion that Girafa asserts that Snap Technologies, Inc.'s service for "website owners" also infringes Claim 50 of the '904 Patent by either contributory infringement or inducement of infringement, as well as directly.

8.21.1 Claim 50 / Snap Classic

222. Claim 50 is dependent on Claim 49 of the '904 Patent. Since the Snap Classic service does not infringe Claim 49, it therefore also does not infringe Claim 50 of the '904 Patent.

8.21.2 Claim 50 / Browser Add-On

223. Claim 50 is dependent on Claim 49 of the '904 Patent. Since the Snap Browser Add-On service does not infringe Claim 49, it therefore also does not infringe Claim 50 of the '904 Patent.

8.21.3 Claim 50 / Snap Publishers/Bloggers

224. As discussed earlier in this Declaration, the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. Therefore, for the same reasons that the Snap Add-On tool does not infringe claim 50 of the '904 Patent, the Snap Shots Publisher/Blogger Service likewise does not infringe claim 50 of the '904 Patent.

8.22 Claim 52 of the ‘904 Patent

225. Dr. Myers asserted that the Snap Classic, Snap Enhanced, and Snap Browser Add-On services from Snap Technologies, Inc. infringe Claim 52 of the ‘904 Patent, which is reproduced below:

“ **52.** A system according to claim **46** and wherein said web page comprises an HTML page.”

226. In addition, it is my understanding from Girafa’s Opening Brief in Support of its Preliminary Injunction Motion that Girafa asserts that Snap Technologies, Inc.’s service for “website owners” also infringes Claim 52 of the ‘904 Patent by either contributory infringement or inducement of infringement, as well as directly.

8.22.1 Claim 52 / Snap Classic

227. Claim 52 is dependent on Claim 46 of the ‘904 Patent. Since the Snap Classic service does not infringe Claim 46, it therefore also does not infringe Claim 52 of the ‘904 Patent.

8.22.2 Claim 52 / Snap Enhanced

228. Claim 52 is dependent on Claim 46 of the ‘904 Patent. Since the Snap Enhanced service does not infringe Claim 46, it therefore also does not infringe Claim 52 of the ‘904 Patent.

8.22.3 Claim 52 / Snap Browser Add-On

229. Claim 52 is dependent on Claim 46 of the '904 Patent. Since the Snap Browser Add-On service does not infringe Claim 46, it therefore also does not infringe Claim 52 of the '904 Patent.

8.22.4 Claim 52 / Snap Publishers/Bloggers

230. As discussed earlier in this Declaration, the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. Therefore, for the same reasons that the Snap Add-On tool does not infringe claim 52 of the '904 Patent, the Snap Shots Publisher/Blogger Service likewise does not infringe claim 52 of the '904 Patent.

8.23 Claim 55 of the '904 Patent

231. Dr. Myers asserted that he believes that the Snap Classic and Snap Enhanced services from Snap Technologies, Inc. infringe Claim 55 of the '904 Patent, which is reproduced below:

“ **55.** A system according to claim **46** and wherein said visualization functionality comprises:
receiving a list of hyperlinks;
splitting a URL of each hyperlink into URL components
including at least a path component and a host component;
trimming a path component based on the consideration of
finding the most representative image of a given web
page; and
constructing a new URL including a trimmed path component.”

8.23.1 Claim 55 / Snap Classic

232. Claim 55 is dependent on Claim 46 of the ‘904 Patent. Since the Snap Classic service does not infringe Claim 46, it therefore also does not infringe Claim 55 of the ‘904 Patent.

233. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Classic service does not perform any splitting of URLs, and thus does not meet this limitation of Claim 55. Therefore, the Snap Classic service does not infringe Claim 55 of the ‘904 Patent.

234. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Classic service does not perform any “trimming a path component” operation on URLs, and thus does not meet this limitation of Claim 55. Therefore, the Snap Classic service does not infringe Claim 55 of the ‘904 Patent.

235. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Classic service does not perform any “constructing a new URL including a trimmed path component” operations, and thus does not meet this limitation of Claim 55. Therefore, the Snap Classic service does not infringe Claim 55 of the ‘904 Patent.

236. For at least the four reasons given here, the Snap Classic service does not infringe Claim 55 of the ‘904 Patent.

8.23.2 Claim 55 / Snap Enhanced

237. Claim 55 is dependent on Claim 46 of the ‘904 Patent. Since the Snap Enhanced service does not infringe Claim 46, it therefore also does not infringe Claim 55 of the ‘904 Patent.

238. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Enhanced service does not perform any splitting of URLs, and thus does not meet this limitation of Claim 55. Therefore, the Snap Enhanced service does not infringe Claim 55 of the ‘904 Patent.

239. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Enhanced service does not perform any “trimming a path component” operation on URLs, and thus does not meet this limitation of Claim 55. Therefore, the Snap Enhanced service does not infringe Claim 55 of the ‘904 Patent.

240. As shown by the analysis above in Section 6.3 of this Declaration, the Snap Enhanced service does not perform any “constructing a new URL including a trimmed path component” operations, and thus does not meet this limitation of Claim 55. Therefore, the Snap Enhanced service does not infringe on Claim 55 of the ‘904 Patent.

241. For at least the four reasons given here, the Snap Enhanced service does not infringe Claim 55 of the ‘904 Patent.

8.24 Claim 56 of the ‘904 Patent

242. Dr. Myers asserted that the Snap Classic and Snap Browser Add-On services from Snap Technologies, Inc. infringe Claim 56 of the ‘904 Patent, which is reproduced below:

“ **56.** A system according to claim **46** and wherein said thumbnail visual image appears hovering over said hyperlink.”

243. In addition, it is my understanding from Girafa’s Opening Brief in Support of its Preliminary Injunction Motion that Girafa asserts that Snap Technologies, Inc.’s service for

“website owners” also infringes Claim 56 of the ‘904 Patent by either contributory infringement or inducement of infringement, as well as directly.

8.24.1 Claim 56 / Snap Classic

244. Claim 56 is dependent on Claim 46 of the ‘904 Patent. Since the Snap Classic service does not infringe Claim 46, it therefore also does not infringe Claim 56 of the ‘904 Patent.

8.24.2 Claim 56 / Snap Browser Add-On

245. Claim 56 is dependent on Claim 46 of the ‘904 Patent. Since the Snap Browser Add-On service does not infringe Claim 46, it therefore also does not infringe Claim 56 of the ‘904 Patent.

8.24.3 Claim 56 / Snap Publishers/Bloggers

246. As discussed earlier in this Declaration, the functionality of the Snap Shots for Publishers/Bloggers service is identical to that of the Snap Browser Add-On tool. Therefore, for the same reasons that the Snap Add-On tool does not infringe claim 56 of the ‘904 Patent, the Snap Shots Publisher/Blogger Service likewise does not infringe claim 56 of the ‘904 Patent.

8.25 Summary of Detailed Claim Infringement Analysis

247. The detailed claim infringement analysis above is summarized as follows.

248. The Snap Classic tool does not infringe on any of the '904 Patent Claims asserted in the Myers Declaration (i.e., the Snap Classic tool does not infringe Claims 1, 4, 5, 7, 12, 15, 18, 21, 22, 24, 29, 32, 35, 38, 39, 41, 44, 45, 46, 49, 50, 52, 55, and 56).

249. The Snap Enhanced tool does not infringe on any of the '904 Patent Claims asserted in the Myers Declaration (i.e., the Snap Enhanced tool does not infringe Claims 1, 4, 7, 12, 18, 21, 24, 29, 35, 38, 41, 44, 46, 49, 52, and 55).

250. The Snap Browser Add-On tool does not infringe on any of the '904 Patent Claims asserted in the Myers Declaration (i.e., the Snap Browser Add-On tool does not infringe Claims 35, 38, 39, 41, 45, 46, 49, 50, 52, and 56).

251. The Snap Shots for Publishers/Bloggers service does not infringe on any of the '904 Patent Claims asserted in Girafa's Motion for Preliminary Injunction (i.e., the Snap Browser Add-On tool does not infringe Claims 35, 38, 39, 41, 45, 46, 49, 50, 52, and 56).

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 14, 2008 at Charlottesville, Virginia.



Professor Gabriel Robins, Ph.D.

Exhibit 1

Exhibit 1: Vitae of Professor Gabriel Robins, Ph.D.



Dr. Gabriel Robins
Professor of Computer Science

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School of Engineering and Applied Science
University of Virginia
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Phone: (434) 982-2207

Birth place: New York City, NY
Citizenship: USA

Education

- Ph.D. in Computer Science, UCLA, 1992
- M.S.E. in Computer Science, Princeton University, 1985
- B.S. in Mathematics and Computer Science, UCLA, 1983
- A.A., Los Angeles Valley College, 1981

Honors and Awards

1. Society for Industrial and Applied Mathematics (SIAM) Outstanding Paper Prize, 2007
2. Packard Foundation Fellowship, 1995-2001 (\$500,000)
3. National Science Foundation Young Investigator Award, 1994-1999 (\$312,500)
4. Member of the Army Science Board, U.S. Army, 1998-2001
5. Member of the Defense Science Study Group, U.S. Department of Defense, 1993-1995
6. Member of the Navy Future Study (of the National Academy of Sciences), 1996-1997
7. Walter N. Munster Endowed Chair, 1997-2002
8. Two-year early promotion to Associate Professor (with tenure), 1996
9. Promotion to Full Professor (with tenure), 2002
10. Faculty Mentor Award, UVa School of Engineering, 1997
11. All-University Outstanding Teaching Award, University of Virginia, 1994-1995
12. University Teaching Fellowship, University of Virginia, 1995-1996
13. Faculty Appreciation Award, Virginia Engineering Foundation, 1998
14. Award for "Tireless Dedication to Improving the Department in All Aspects",
Department of Computer Science, 1998
15. Web Team Award - "In Appreciation for Founding and Leading the Department's
Excellent Web Team for 6 Years", 2001
16. Member of the Faculty Senate, University of Virginia, 1999-2002
17. Member of the School of Engineering Faculty Council, University of Virginia, 1999-
2002
18. Associate Editor of IEEE Transactions on Very Large Scale Integration (VLSI) Systems,
2000-2005
19. Member of the Editorial Board of Research Letters in Electronics, 2007-present
20. Expert Witness for major software and intellectual property litigations, 1996-present
21. Invited paper in IEEE International Conference on Electronics, Circuits and Systems,
2004

22. Nomination for Virginia state-wide (SCHEV) Outstanding Faculty Award, 1995
23. Nomination for NSF Presidential Faculty Fellows Award, 1995-1996
24. National Science Foundation Research Initiation Award, 1993
25. Nomination for ACM Best Dissertation Award, 1992
26. IBM Graduate Fellowship, 1991-1992
27. Distinguished Paper Award, IEEE International Conference on Computer-Aided Design, 1990
28. Nomination for Best Paper Award, Asia and South Pacific Design Automation Conference, Hong Kong, January 1999.
29. Distinguished Teaching Award, UCLA, 1989
30. Chancellor's Distinguished Honor Award
31. University of California Regents Scholarship
32. Dean's list (10 times)
33. Top ranked by students at "Rate My Professor" (RateMyProfessor.com)

Research Interests

Computer-Aided Design of VLSI, algorithms, computational biology, combinatorial optimization, computational geometry, national security and military issues.

Teaching Interests

VLSI CAD, algorithms, problem solving, discrete math, data structures, computational geometry, automata theory, formal languages.

Experience

- Professor of Computer Science (with tenure), Department of Computer Science, University of Virginia (6/02 to present).
- Walter N. Munster Associate Professor of Computer Science (with tenure), Department of Computer Science, University of Virginia (6/97 to 6/02).
- Associate Professor (with tenure), Department of Computer Science, University of Virginia (9/96 to 6/97).

- Assistant Professor, Department of Computer Science, University of Virginia (9/92 to 9/96).
- Member of the Army Science Board (6/98 to 02/01): I served on this Department of Defense board, advising the U.S. Army on science, technology, research, and national security issues.
- Member of the National Academy of Sciences study: Technology for the United States Navy and Marine Corps, 2000-2035 - Becoming a 21st Century Force, 1996-1997: our task for this DoD advisory panel was to provide the U.S. Navy with a comprehensive strategic vision through the year 2035.
- DoD Advisor, Defense Science Study Group (DSSG), Institute for Defense Analysis (IDA) (11/93 to present): In the context of this advisory board to the U.S. Department of Defense, we met with U.S. Secretary of Defense Bill Perry, as well as with numerous military experts, to discuss science and technology issues. We also visited a number of military bases and installations.
- Expert Witness, Federal Bureau of Investigation, San Diego, CA (2004-2005): Analyzed evidence and testified in a major software and intellectual property litigation.
- Expert Witness, Banner & Witcoff Ltd., Washington, D.C. (2005): Analyzed evidence, created patent claims charts, and helped draft patent invalidity filings and re-exam requests in a major patent litigation between two public companies.
- Expert Witness, Morrison & Foerster LLP, San Francisco, CA (2002-2003): Analyzed evidence and testified in a major software and intellectual property litigation.
- Expert Witness, O'Melveny and Myers, San Francisco, CA (1996-2005): Analyzed evidence and testified in a major software and intellectual property litigation.
- Research Assistant, UCLA (9/89 to 7/92): I performed research in layout algorithms for performance-driven interconnection, circuit testing, computational geometry, and motion planning.
- Teaching Assistant, UCLA (9/87 to 1/90): I developed and taught a graduate-level course in computational geometry, as well as an upper-division course in formal languages and automata theory.
- Researcher, USC Information Sciences Institute (6/85 to 1/89): I helped develop the knowledge representation language NIKL. I also designed and implemented the ISI Grapher, a portable tool for displaying arbitrary graphs pictorially. My system generated considerable interest worldwide, and was marketed commercially.
- Teaching Assistant, Princeton University (9/83 to 6/85): I taught an undergraduate programming course in Pascal using the Apple MacIntosh.

- Consultant, Xerox Electro-Optical Systems (7/84 to 9/84): I designed and implemented critical 3MB Ethernet software, allowing VAX 11/780 computers to communicate with Xerox 1108 workstations.
- Lab Supervisor, UCLA Mathematics Department (10/82 to 6/83): I supervised an undergraduate computing laboratory, helping students with Pascal and C.
- Programmer, Carnation Research (9/79 to 9/82): I programmed an IBM mainframe computer in Fortran, and designed and implemented numerous scientific applications for food-products manufacturing.

Membership in Professional Societies

1. Institute of Electrical and Electronics Engineering (IEEE)
2. Association for Computing Machinery (ACM)
3. ACM Special Interest Group on Design Automation (SIGDA)
4. ACM Special Interest Group on Automata and Comp. Theory (SIGACT)

Note: my publication policy is to always order co-author names alphabetically.

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2. Kahng, A. B. and Robins, G., On Optimal Interconnections for VLSI, Kluwer Academic Publishers, Boston, MA, 1995, 304 pages.
3. Kahng, A. B., Robins, G., and Walkup, E. A., Optimal Algorithms for Substrate Testing in Multi-Chip Modules, in High Performance Design Automation for Munti-Chip Modules and Packages, J.-D. Cho and P. D. Franzon, Editors, World Scientific Publishing Co., 1996, pp. 181-198.
4. Robins, G. and Zelikovsky, A. Minimum Steiner Tree Construction, in The Handbook of Algorithms for VLSI Physical Design Automation, C. J. Alpert, D. P. Mehta, and S. S. Sapatnekar (editors), CRC Press, 2007.
5. Hu, J., Robins, G, and Sze C. N., Timing-Driven Interconnect Synthesis, in The Handbook of Algorithms for VLSI Physical Design Automation, C. J. Alpert, D. P. Mehta, and S. S. Sapatnekar (editors), CRC Press, 2007.

6. Bolotnyy, L, and Robins, G., Multi-tag RFID systems, in the book "Security in RFID and Sensor Networks", Auerbach Publications, CRC Press, Taylor & Francis Group, 2008.
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8. Foster, L., and Robins, G., Solution to a Number Theory Problem, American Mathematical Monthly, Vol. 89, No. 7, Aug-Sep, 1982, pp. 499-500.
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141. Bolotnyy, L., and Robins, G., Inter-Tag Communication and Tag Cooperation in RFID Systems, University of Virginia, Department of Computer Science Technical Report # CS-2006-11, February 2006.
142. Bolotnyy, L., and Robins, G., Generalized "Yoking-Proofs" for a Group of Radio Frequency Identification Tags, University of Virginia, Department of Computer Science Technical Report # CS-2006-12, March 2006.
143. Bolotnyy, L., and Robins, G., Physical Unclonable Function -Based Security and Privacy in RFID Systems, University of Virginia, Department of Computer Science Technical Report # CS-2007-01, January 2007.

Patents and Invention Disclosures

1. "Thermal Fill to Control Thermal Skew", Disclosure filed August 15, 2003, with co-inventor Andrew Kahng (UCSD).
2. "Multi-Tag Radio Frequency Identification Systems", Disclosure filed September 21, 2005, with co-inventor Leonid Bolotnyy (UVa).

News Articles Referring to Me or My Work

1. *Famous Last Words*, Perth Sunday Times, Australia, April 27, 2008
2. *Dying Professor Randy Pausch's Lecture Worldwide Sensation*, Perth Now, Australia, April 26, 2008
3. *Perspective: "I'm Living My Life" - Randy Pausch's Lessons Touch Many*, The University of Virginia Magazine, Spring 2008.

4. *Time of Your Life*, Cavalier Daily, Nov 28, 2007.
5. *Professor with Terminal Cancer: There's Less Time Than You Think*, Daily Progress, Nov 28, 2007.
6. *Randy Pausch Delivers Lecture on Time Management at UVA, Draws Crowd of Hundreds*, Virginia Sentinel, Nov 28, 2007.
7. *Randy Pausch: Time is All That Matters*, UVa Today, Nov 28, 2007.
8. *Prognosis Prompts Professor's Tour*, NBC 29 / WVIR-TV, Nov 27, 2007.
9. *Former UVa Prof Giving His Last Lectures*, 19 News / WCAV-TV, 16 ABC, FOX 27 / WAMU, Nov 27, 2007.
10. *Lecture of a Lifetime: U.Va.'s School of Engineering and Applied Science Hosts Talk by Randy Pausch*, UVa Today, Nov 12, 2007.
11. *With his Death Looming, Randy Pausch Gives the Lecture of a Lifetime*, UVa Today, Sept 25, 2007
12. *Astronomer Kelsey Johnson Named Packard Fellow*, UVa Today, Oct 8, 2007.
13. *The Perspiration of Patenthood*, IEEE-USA Today's Engineer Online, March, 2007.
14. *Forensic Engineering: On the Trail of Truth*, IEEE-USA Today's Engineer Online, September, 2006.
15. *Babbage Institute Records Computer Science History*, The Minnesota Daily, October 12, 2005.
16. *Focusing on Partnerships*, Impact - Engineering That Makes a Difference, School of Engineering and Applied Science, UVa, Spring Issue, Volume 4, Number 3, March 2002, p. 1.
17. *Robins Tackles Computing Problems*, Inside UVa, November 10, 2000.
18. *Give this to Will Smith*, National Post, September 5, 2000.
19. *Models Connect Technology, Biology*, Cavalier Daily, February 24, 2000.
20. *Robins Receives Grant of \$500,000 from Packard Foundation*, The University Journal, Vol. XVIII, No. 30, October 13, 1995, p. 1
21. *Computer Whiz and then Some*, Virginia Engineering, University of Virginia, Spring 1996, pp. 7-8.
22. *Computer Scientist Wins Top Fellowship*, Virginia Engineering, Winter, 1996, p. 5

23. *Packard Award Given to Gabriel Robins in the School of Engineering and Applied Science*, Opportunities, University of Virginia, June 17, 1996, p. 15
24. *Workshop: Physical Design not in Great Shape*, Electronic Engineering Times, April 22, 1996.
25. *Robins Earns Young Investigator Award*, Virginia Engineering, Fall 1994, p. 4
26. *Faculty Members Earn Recognition from University*, Cavalier Daily, April 26, 1995, p. 1
27. *Award-Winning Teachers Help Students Make Their Own Discoveries*, Inside UVa, Vol. 25, Issue 15, April 28, 1995, pp. 1-3
28. *Scientists Float a New Solution to Puzzling Bubble*, Los Angeles Times, Oct 1, 1992, pp. A-2, B-1, B-3
29. *Floating an Answer to Bubble Riddle*, Nora Zamichow, San Diego Union-Tribune, Oct 1, 1992, pp. B-1, B-8
30. *Mathematics: Bubble Problem's Practical Potential*, Washington Post, Monday, October 5, 1992, p. A-2
31. Associated Press, The Boston Globe, Thursday, October 1, 1992, p. A-3
32. Notices also appeared in The San Francisco Examiner, and the World Journal

Code Distributions

1. Steiner code (UNIX tar format)
2. FPGA code
3. FPGA benchmarks and routings
4. Group Steiner code (Java)

Invited Talks and Colloquiums

1. The ISI Grapher: a Portable Tool for Displaying Graphs Pictorially, at the Symboliikka '87 Conference, Helsinki, Finland, August 17, 1987.
2. Performance-Driven Global Routing for Cell Based IC's, at IBM Thomas J. Watson Research Center, Yorktown Heights, November, 1991.
3. Provably-Good Algorithms for Bounded Radius Spanning and Steiner Trees, at Institute for Defense Analysis (IDA), La Jolla, Ca, October 1, 1992.

4. High-Performance Routing Constructions for FPGAs, at Computer Science Department, University of Illinois, Urbana-Champaign, IL, November 4, 1994.
5. Performance-Driven Routing for Field-Programmable Gate Arrays, at Computer Science Department, University of California at Berkeley, Berkeley, CA, November 11, 1994.
6. Performance-Driven FPGA Routing Algorithms, at Xilinx Corporation, San Jose, CA, November 10, 1994.
7. Three-Dimensional Field-Programmable Gate Arrays, at the 1996 Canadian Workshop on Field-Programmable Devices, Toronto, Canada, May 1996.
8. New Algorithms for the Network Multicast Problem, at the International Computer Science Institute, Berkeley, CA, November 10, 1994.
9. From Chips to Ships: Applying VLSI CAD Algorithms to Naval Vessel Design, Institute for Defense Analyses, Alexandria, Va, November 1995.
10. On Optimal Interconnections, Packard Foundation, Monterey, CA, September 1996; talk given at the Packard Foundation Annual Meeting.
11. Excellence and Academia: a Different Perspective, Invited speaker at the UVa Teaching Resource Center Retreat, September 1997.
12. Moving-Target TSP and Related Problems, Packard Foundation Annual Meeting, Santa Fe, New Mexico, September 1998.
13. New Problems and Algorithms in VLSI CAD and Computational Geometry, Georgetown University, Washington D.C., February 18, 1999.
14. Interconnections, Packard Foundation Annual Meeting, Monterey, CA, September 2000.
15. New Problems and Algorithms in VLSI CAD and Computational Geometry, 2000 Seminar Series, Department of Systems Engineering, October 2000.
16. Fun With Math, University of Virginia Math Club, Department of Mathematics, March 2002.
17. More Fun With Math, University of Virginia Math Club, Department of Mathematics, April 2002.
18. The UVa Computer Museum, Virginia's Governor's School, November, 2003.
19. A Brief History of Computers, Virginia's Governor's School, Summer, 2004.
20. Applied Algorithms and Optimization, University of Virginia, CS290/390 Department of Computer Science, April 2006.

21. Beautiful Proofs, University of Virginia Math Club, Department of Mathematics, April 2006.

Presentations

1. Applied Algorithms and Optimization
2. Algorithmic Analysis of Human DNA Replication Timing from Discrete Microarray Data
3. New Directions in Reliability, Security and Privacy in Radio Frequency Identification Systems (Dec 2007)
4. New Directions in Detection, Security and Privacy for RFID (Ph.D. proposal)
5. The Practicality of Multi-Tag RFID Systems
6. Physically Unclonable Function -Based Security and Privacy in RFID Systems
7. Randomized PRF Tree Walking Algorithm for Secure RFID
8. New Approaches to Analyzing Biological Sequences
9. Multiple Sequence Alignment by Iterative Tree-Neighbor Alignments
10. A Web-based Tool for Visual Identification of Novel Genes
11. A Distributed System for Biological Sequence Analyses
12. Quantum Algorithms for the Moving-Target Traveling Salesperson Problem
13. Improved Steiner Tree Approximations in Graphs
14. Hierarchical Dummy Fill for Process Uniformity
15. Closing the Smoothness and Uniformity Gap in Area Fill Synthesis

Posters

1. Computer Science at Virginia - Thomas Jefferson With Laptop
2. Applied Algorithms and Optimization
3. Radio Frequency Identification Systems: New Ideas and Algorithms
4. Generalized 'Yoking-Proofs' for a Group of RFID Tags

5. Area Fill Synthesis Algorithms for Enhanced VLSI Manufacturability
6. Quantum Algorithms for the Moving-Target Traveling Salesperson Problem
7. A New Distributed System for Large Scale Sequence Analyses
8. A Web-based Tool for Visual Identification of Novel Genes
9. The Generalized Neighbor Joining Method
10. Primer Selection for Polymerase Chain Reactions
11. Filling Algorithms and Analyses for Improved VLSI Manufacturability
12. Moving Target TSP and Related Problems
13. Improved Approximation Bounds for the Group Steiner Problem

Boards / Panels

1. Member of the Editorial Board of Research Letters in Electronics, 2007-present.
2. Associate Editor of IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2000-2005.
3. Panel Member at the Requirements for Regional Stability/Capacity Building R&D, sponsored by the White House Office of Science and Technology Policy, the U.S. State Department, and the U.S. Department of Defense, Washington D.C., December 3, 2004.
4. Member of the Army Science Board, a federal advisory committee U.S. Army on science, technology, research, and national security, 1998-2002.
5. Member of the Defense Science Study Group (DSSG), an advisory board to the Department of Defense, 1994-1995.
6. Member of the National Academy of Sciences study: Technology for the United States Navy and Marine Corps, 2000-2035 - Becoming a 21st Century Force, an advisory panel to the U.S. Navy, 1996-1997.
7. Member of the Editorial Board of the IEEE Press Book Series.
8. National Science Foundation Design Automation Panel.
9. National Science Foundation Information Technology Research (ITR) Panel, 2002.

Grants Received

1. Packard Foundation Fellowship, **\$500,000**, September 1995 to September 2001.
2. National Science Foundation Young Investigator Award, MIP-9457412, **\$312,500**, August 1994 to August 2000.
3. New Directions in Reliability, Security and Privacy for Radio Frequency Identification (RFID) Systems, National Science Foundation, **\$450,000**, September 2007 to July 2010.
4. New Directions for Advanced VLSI Manufacturability, National Science Foundation, **\$93,039**, August 2004 to July 2007.
5. Research in Layout Optimization for Advanced Manufacturability Considerations, National Science Foundation, **\$421,943**, August 2000 to July 2003.
6. New Directions in Computational Biology, (co-PI with Bill Pearson), National Institute of Health / National Library of Medicine, August 2000 to August 2005, **\$1,800,000**.
7. New Approaches to Phylogeny, Alignment, and Sequence Matching (co-PI with Bill Pearson), National Institute of Health / National Library of Medicine, grant number LM04961, August 1995 to August 2000, **\$1,175,000**.
8. National Science Foundation, Research Experiences for Undergraduates, **\$10,000**, 1995.
9. National Science Foundation, Research Experiences for Undergraduates, **\$10,000**, 1996.
10. National Science Foundation, Research Experiences for Undergraduates, **\$10,000**, 1997.
11. National Science Foundation, Support for 1996 ACM/SIGDA Physical Design Workshop, **\$12,500**.
12. Digital Equipment Corporation, December 1994, **\$45,520**.
13. New Directions in Interconnect Optimization for High-Performance VLSI System Design, Research Initiation Award, National Science Foundation, June 1994, **\$100,000** over three years.
14. Co-investigator on computational biology grant (with Bill Pearson), National Institute of Health / National Library of Medicine, grant number LM04969-06, July 1993 to June 1994, **\$136,774**.
15. Software contribution from Alias Research Inc., May 1995, **\$550,000**.
16. Dean's Research Initiation Grant, University of Virginia School of Engineering, 1993, **\$4,000**.

Postdocs

1. Alexander Zelikovsky, Department of Computer Science, University of Virginia, November 1995 to September 1997.

Current Graduate Students

1. Subhadeep Chatterjee, 2007 to present.
2. Kirti Chawla, 2007 to present.

Graduated Students

1. Mike Alexander, Ph.D. in Computer Science, University of Virginia, August 1996; then a professor at Washington State University.
2. Susan Bibeault, M.S. in Computer Science, University of Virginia, June 2000.
3. Doug Blair, M.S. in Computer Science, University of Virginia, December 2000; then a Programmer at Parabon, Inc.
4. Leonid Bolotnyy, M.S. in Computer Science, University of Virginia, August 2005; Ph.D. in Computer Science, University of Virginia, December 2007; then a software engineer at a startup company.
5. Berni McCoy, M.S. in Computer Science, University of Virginia, December 1993; then a Software Engineer at Numega Corp.
6. Brett Coryell, M.S. in Computer Science, University of Virginia, May 1995; then Director of Technology at The Hill school, Philadelphia, PA.
7. Eric Cota-Robles, M.S. in Computer Science, University of Virginia, December 1994; then an Engineer at Intel Corp., OR
8. Chris Helvig, M.S. in Computer Science, University of Virginia, May 1998; then a computer game developer at Volition, Inc.
9. Bill Huang, M.S. in Computer Science, University of Virginia, December 2000; then a Software Developer at Microsoft.
10. Ankit Malhotra, M.S. in Computer Science, University of Virginia, November 2005.
11. Jennifer Mifflin, M.S. in Computer Science, University of Virginia, May 2002; then a Software Engineer.

12. Brian Robinson, M.S. in Computer Science, University of Virginia, December 1994; then a Software Engineer at American Management Systems, Arlington, VA.
13. Anish Singh, M.S. in Computer Science, University of Virginia, December 1998; then a Software Engineer at Hughes.
14. Chris Taylor, Ph.D. in Computer Science, Department of Computer Science, University of Virginia, December, 2008; then a tenure-track Professor at the University of New Orleans.
15. Jason Watson, 2005 to 2007; Chief Technical Officer at M-CAM, Inc.
16. Tongtong Zhang, Ph.D. in Computer Science, Department of Computer Science, University of Virginia, December, 1998; then a researcher at Merck Labs.

Undergraduate Advising

1. Marcus Balk, B.S. in Computer Science, University of Virginia, May 1996.
2. Tim Barrera, B.S. in Computer Science, University of Virginia, May 1993.
3. Doug Bateman, B.S. in Computer Science, University of Virginia, May 1998.
4. Ricky Chiappe, B.S. in Computer Science, University of Virginia, May 1996.
5. Matthew Chiste, B.S. in Computer Science, University of Virginia, May 1998.
6. Jason Csomay, B.S. in Computer Science, University of Virginia, May 1996.
7. Jeff Griffith, B.A. in Mathematics, University of Virginia, December 1992.
8. Daniel Haspel, B.A. in Mathematics, University of Virginia, May 2003.
9. Todd Hodes, B.S. in Computer Science, University of Virginia, May 1994, finalist in the Undergraduate Research and Design Symposium; won the Louis T. Rader Award for research.
10. Rachel Hyman, B.S. in Computer Science, University of Virginia, May 1996.
11. Scott Krize, B.S. in Computer Science, University of Virginia, May 2007.
12. Bjornar Larsen, B.S. in Computer Science, University of Virginia, May 1996.
13. Jonathan Leech, B.S. in Computer Science, University of Virginia, May 1996.
14. George Leffue, B.S. in Computer Science, University of Virginia, May 2008.
15. Daniel McNally, B.S. in Computer Science, University of Virginia, May 2008.

16. Duane Merrill, B.S. in Computer Science, University of Virginia, May 2000.
17. Ed Peters, B.S. in Computer Science, University of Virginia, May 1996.
18. Eric Powders, B.S. in Computer Science, University of Virginia, May 1998.
19. Michael Shadid, B.S. in Computer Science, University of Virginia, May 2000.
20. Chris Snook, B.S. in Computer Science, University of Virginia, May 2004.
21. Kevin Sonnhalter, B.S. in Computer Science, University of Virginia, May 2000.
22. Brian Street, B.A. in Mathematics, University of Virginia, May 2003.
23. Jason Watson, B.A. in Cognitive Science, University of Virginia, May 1997.
24. Jacob Woods, B.S. in Computer Science, University of Virginia, May 2008.

Dissertation / Thesis Committees

1. Mike Alexander, Ph.D. in Computer Science, University of Virginia, July 1996, Dissertation Advisor.
2. Doug Blair, M.S. in Computer Science, University of Virginia, December 2000, Thesis Advisor.
3. Leonid Bolotnyy, M.S. in Computer Science, University of Virginia, August 2005, Thesis Advisor.
4. Leonid Bolotnyy, Ph.D. in Computer Science, University of Virginia, December 2007, Dissertation Advisor.
5. Evelyn Brown, Ph.D. in System Science, University of Virginia, May 1996, Committee Member.
6. Charles Choi, Ph.D. in Electrical Engineering, University of Virginia, January 1997, Committee Member.
7. Florin Ciucu, Ph.D. in Computer Science, University of Virginia, Committee Member.
8. Brett Coryell, M.S. in System Science, University of Virginia, December 1996, Thesis Advisor.
9. Eric Cota-Robles, M.S. in Computer Science, University of Virginia, December 1994, thesis advisor.
10. Gabe Ferrer, Ph.D. in Computer Science, University of Virginia, May 2002, Committee Member.

11. Joe Ganley, Ph.D. in Computer Science, University of Virginia, May 1995, Committee Member.
12. Rich Gossweiler, Ph.D. in Computer Science, University of Virginia, August 1995, Committee Member.
13. Chris Helvig, M.S. in Computer Science, University of Virginia, May 1998, Thesis Advisor.
14. Bill Huang, M.S. in Computer Science, University of Virginia, December 2000, Thesis Advisor.
15. Lance Hopenwasser, M.S. in Computer Science, University of Virginia, March 1998, Committee Member.
16. John Karro, Ph.D. in Computer Science, University of Virginia, 2000, Committee Member.
17. Ankit Malhotra, M.S. in Computer Science, University of Virginia, December 2005, Thesis Advisor.
18. Berni McCoy, M.S. in Computer Science, University of Virginia, December 1993, Thesis Advisor.
19. Kevin McLaughlin, M.S. in Electrical Engineering, Univ. of Virginia, May 1993, Committee Member.
20. Sean McCulloch, Ph.D. in Computer Science, University of Virginia, 2002, Committee Member.
21. Anand Natrajan, Ph.D. in Computer Science, University of Virginia, 1999, Committee Chair.
22. Karsten Nohl, Ph.D. in Computer Science, University of Virginia, 2008, Committee Chair.
23. Ramesh Peri, Ph.D. in Computer Science, University of Virginia, October 1995, Committee Member.
24. David Rasikan, M.S. in Computer Science, University of Virginia, May 1994, Committee Chair.
25. Brian Robinson, M.S. in Computer Science, University of Virginia, December 1994, thesis advisor.
26. Bhupinder Singh Sethi, M.S. in Computer Science, University of Virginia, December 1997, Committee Member.

27. Anish Singh, M.S. in Computer Science, University of Virginia, December 1998, Thesis Advisor.
28. Mat Soukup, Ph.D. in Statistics, University of Virginia, July 2004, Committee Member.
29. Isabelle Stanton, M.S. in Computer Science, University of Virginia, March 2008, Committee Member.
30. Chris Taylor, Ph.D. in Computer Science, University of Virginia, April 2008, Dissertation Advisor.
31. Brett Tjaden, Ph.D. in Computer Science, University of Virginia, May 1997, Committee Member.
32. Glenn Wasson, Ph.D. in Computer Science, University of Virginia, Committee Member.
33. Dallas Wrege, Ph.D. in Computer Science, University of Virginia, August 1996, Committee Member.
34. Ting Yan, Ph.D. in Computer Science, University of Virginia, 2006, Committee Member.
35. Tongtong Zhang, Ph.D. in Computer Science, University of Virginia, 1998, Dissertation Advisor.

Refereeing (conferences)

1. ACM/IEEE Design Automation Conference
2. ACM/SIGDA Physical Design Workshop
3. Canadian Workshop on Field-Programmable Devices
4. Great Lakes Symposium on VLSI
5. Hawaiian International Conference on System Sciences
6. IEEE/ACM International Conference on Computer-Aided Design
7. IEEE International ASIC Conference
8. IEEE International Symposium on Circuits and Systems
9. Italian Conference on Theoretical Computer Science
10. Symposium on the Principles of Distributed Computing
11. Undergraduate Research and Design Symposium, University of Virginia

Refereeing (journals)

1. Research Letters in Electronics
2. ACM Transactions on Design Automation of Electronic Systems
3. Automatica
4. IEEE Computer Magazine
5. IEEE Transactions on Circuits and Systems
6. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems
7. IEEE Transactions on Computers
8. IEEE Transactions on Robotics and Automation
9. IEEE Transactions on Software Engineering
10. IEEE Transactions on Systems, Man, and Cybernetics
11. Information Processing Letters
12. Journal of VLSI Design
13. Mathematical and Computer Modelling
14. Networks: an International Journal
15. Pattern Recognition Letters
16. Science

Refereeing (institutions and companies)

1. Addison-Wesley Publishing Company, Redwood City, CA
2. Addison-Wesley Longman, Reading, MA
3. Elsevier
4. MacMillan Publishing Company, New York, NY
5. National Science Foundation, Washington, D.C., various grant proposals
6. National Science Foundation, Washington, D.C., Design Automation Panel

7. Springer

Professional Service

1. Program Committee Member, International Conference on VLSI Design, 2005.
2. Program Committee Member, International Conference on Embedded systems, 2005.
3. Technical Session Chair, IEEE International Conference on Electronics, Circuits and Systems, 2004.
4. Organizing Committee Member, German-American Frontiers of Engineering Symposium (GAFOE), Germany, 2000.
5. General Chair, ACM/SIGDA Physical Design Workshop, 1996.
6. Co-Chair (VLSI Track), IEEE International Symposium on Circuits and Systems, 1996.
7. Technical Program Committee Member, Great Lakes Symposium on VLSI, 1995-1997.
8. Technical Program Committee Member, Great Lakes Symposium on VLSI, 1998.
9. Technical Program Committee Member, IEEE International ASIC Conference, 1994-1998.
10. Technical Program Committee Member, Canadian Workshop on Field-Programmable Devices, 1996.
11. Technical Program Committee Member, Canadian Workshop on Field-Programmable Devices: Technology, Tools, and Applications, 1998.
12. Technical Session Moderator at IEEE International Conference on Computer-Aided Design, 1993.
13. Technical Session Chair at IEEE International ASIC Conference, 1993-1995.
14. Technical Session Chair at Great Lakes Symposium on VLSI, 1993, 1995.
15. Technical Session Chair at the International Symposium on Physical Design, 1998.
16. Co-founder of the International Symposium on Physical Design, 1997.
17. DARPA MEP2 Kickoff Meeting on ATR Briefings and Compact Radar Tour, National Ground Intelligence Center, September 1999.
18. DDR&E/IDA: Participant, Panel 5: Information, Workshop on Advanced Technologies and Future Joint War Fighting, April 8-10, 1999.

19. Study participant, Naval Studies Board, Technology for the United States Navy and Marine Corps, 2000-2035 Becoming a 21st-Century Force - Volume 9 - Modeling and Simulation Panel, 1996-1997.
20. Panel participant, Interagency Requirements for Regional Stability/Capacity Building Research and Development, White House Office of Science and Technology Policy, U.S. Department of State, and U.S. Department of Defense, Washington D.C., December 2004.

University Service

1. Member of the School of Engineering Web Committee, University of Virginia, 2007-present.
2. Member of the School of Engineering Promotion and Tenure Committee, University of Virginia, 2004-2007.
3. Member of the Faculty Senate, University of Virginia, 1999-2002.
4. Member of the School of Engineering Faculty Council, 1999-2002.
5. Member of the Faculty Forum for Scientific Research, 1999-2002.
6. Member of the Research Computing & Information Technology Task Force, 2000-2001.
7. Member of the Research and Scholarship Committee, University of Virginia, 1999-2002.
8. Member of the Awards Committee, School of Engineering and Applied Science, 2001-2003.
9. Publicity Czar, Department of Computer Science, University of Virginia, 1997-present.
10. Member of the Graduate Curriculum Committee, Department of Computer Science, University of Virginia, 1999 to present.
11. Chair of the Outreach Committee, Department of Computer Science, University of Virginia, 2004.
12. Member of the Outreach Committee, Department of Computer Science, University of Virginia, 2005-present.
13. Chair of the CS Graduate Admissions Committee, 2001-2002.
14. Member of the CS Graduate Admissions Committee, 2004-present.

15. Founded and managed the CS Web Team, a multi-faceted support group which assisted numerous faculty, administrators, offices, and institutions with various Web-related work, 1994-2001, and 2005-present.
16. Created and improved the CS Lounge at the UVa Department of Computer Science, including the acquisition and setup of a self-sustaining food and beverage service, and various games/puzzles, 1998-present.
17. Produced the new Department of Computer Science Brochure, 1998.
18. Updated the Department of Computer Science Brochure, 2000; this brochure was distributed to all computer science departments in the world (over 1000 departments), as well as to selected deans and CS faculty world-wide (over 5,000 copies of this brochure were mailed out in all).
19. Purchased a large-format poster printer for the Computer Science Department.
20. Created set of posters describing the Department of Computer Science, 1998; created updated versions in 2000 and 2006.
21. Started a "poster drive" around the School of Engineering; other departments are now producing hallway posters based on the style and format originated by me.
22. Member of the UVa Network-Based Information Services Committee.
23. Member of SEAS Committee on Computing Environment, 1995-1996.
24. Chair of the SEAS Dean's Research Advisory Committee, 1997-1999.
25. Member of the SEAS Dean's Research Advisory Committee, 1996 to present.
26. Member of the SEAS Media Program, 1998-present.
27. Member of the Dean's Reappointment Committee, 1998.
28. Served on the Seven Society Outstanding Teaching Fellow selection committee, March 1998.
29. Served as judge for Best Web Site of 1998 contest, UVa, March 1998.
30. Member of the SEAS Promotion and Tenure Review Committee, which rewrote the SEAS Promotion and Tenure Guidelines, 1997-1998.
31. Helped UVa's Teaching Resource Center to organize teaching workshops and create a new university-wide mentoring program for junior faculty.
32. Helped organize the March 1998 SEAS/NSF Teaching Workshop.

33. Produced minutes for the UVa Department of Computer Science weekly faculty meetings (1992-1993).
34. Organized and maintained a student kudos board/display, Department of Computer Science, UVa, 1992 to present.
35. In charge of New Student Orientation Seminar (CS696), UVa Dept. of Computer Science, 1993, 1996, 1997, 1998, 1999, 2000.
36. Represented the UVa Department of Computer Science at "Day on the Lawn", Spring 1994.
37. Represented the UVa Department of Computer Science at "Career Day", September 28, 1994.
38. Represented the UVa Department of Computer Science at "SEAS Open House" and "CS Day", February 2006.
39. Chaired the UVa Department of Computer Science Ph.D. qualifying orals committee, 2007.
40. Served on the UVa Department of Computer Science Ph.D. qualifying orals committee, 1993-present.
41. Contributed questions for Department of Computer Science Ph.D. qualifying exams, 1992-present.
42. Participated in panel discussion on graduate schools for the local ACM Chapter, September 26, 1994.
43. Represented the UVa Department of Computer Science at "Parents Day", October 29, 1994.
44. Designed, implemented, and maintained Web site for Department of Computer Science, Uva, 1994-present.
45. Implemented a major redesign and update of the Department of Computer Science Web site, UVa, 2006.
46. Designed, created and maintained Web pages for the UVa School of Engineering, 1995-2000.
47. Created and maintained Web home page for the UVa Office of the Vice Provost for Research, 1997-2000.
48. Speaker at VCIT's Technology Focus Symposium, UVa, June 1 1995.
49. Met with Prof. Ed Feigenbaum (Chief Scientist of the Air Force) regarding future technology issues, May 1995.

50. Met with committee of four visiting deans, May 11, 1995.
51. Represented the UVa Department of Computer Science at "Parents Day", August 26, 1995.
52. Represented the UVa Department of Computer Science, September 1, 1995.
53. Met with Dean's representative on strategic planning, September, 1995.
54. SEAS Undergraduate Research Symposium Committee, 1995-1997.
55. Computer Science Department Chair Search Committee, 1995-1996.
56. Met with ACM Student Chapter members, October 20, 1995.
57. Met with ARCS Foundation members, October 21, 1995.
58. Poster presentation for IBM visiting committee, October 23, 1995.
59. Met with Associate Deans regarding improving the teaching infrastructure, October 30, 1995.
60. Member of the New Computer Science Building Committee, 1995 to present.
61. In charge of Distinguished Speakers Colloquia, UVa Department of Computer Science at the SEAS Picnic, 1995-1996.
62. Represented the UVa School of Engineering and spoke at "Day on the Lawn", April 1997.
63. Represented the UVa Department of Computer Science at graduation ceremony at the Rotunda, December 6, 1997.
64. Organized a Web design contest for the Virginia Engineering Foundation, 1997-1998.
65. Organized a CS Design Contest for CS Dept. T-shirts, coffee mugs, and logo, 1998.
66. Founded a CS Department-wide hallway poster drive, 1996 to present.
67. Helped organize the School of Engineering Research Retreat (at the Homestead, VA), March 1997.
68. Founded a CS Department Computer Museum (both Web-version and physical artifacts version), 1995 to present.
69. Mentored a number of junior faculty around SEAS and the University.
70. Helped several UVa faculty win Packard Fellowships.

71. Created a new Web site for the Packard Foundation.
72. Co-founded Tea Time at the Department of Computer Science, 1996 to present.
73. Gave Web presentation to the Virginia Engineering Foundation Board of Directors, May 2, 1997.
74. Gave a talk at the Virginia Engineering Foundation Board of Directors meeting, January 30, 1998.
75. Gave a presentation to the Dean's Research Advisory Committee, September 18, 1998.
76. Spoke at the VEF Awards Luncheon, Virginia Engineering Foundation, May 3, 1997.
77. Gave a talk at the Virginia Engineering Foundation Board of Directors meeting, October 2, 1998.
78. Invited speaker at the UVa Teaching Resource Center Retreat, September 20, 1997.
79. Invited panel speaker, "What You Need to Know to be Successful in Research: What I wish I'd Known Sooner", workshop sponsored by the Office of the Vice Provost, UVa, January 9, 1998.
80. Refereed Packard Foundation pre-proposals for Vice Provost and helped select each year's Packard nominees, 1996-present.
81. Coached UVa Computer Science Ph.D. students in preparation for Qualifying Exams, 1994-present.

Public Service

1. Organized visit and "Time Management" lecture by Randy Pausch, Nov 2007.
2. Maintaining the Randy Pausch Legacy Web site, 2007 to present
3. Hosted site visit of 40 high school students from Virginia's Governor's School, December 2003.
4. Hosted site visit of 20 high school students from Virginia's Governor's School, May 2004.

Courses Taught

1. Graduate Student Orientation (CS696), Fall 1993, 1996, 1997, 1998, 1999, 2000, Computer Science Department, UVa.

2. Computational Geometry (CS860), Fall 1997, Computer Science Department, UVa.
3. Undergraduate Research Seminar (CS491), Spring 1997, Computer Science Department, UVa.
4. Discrete Mathematics 1 (CS202), Fall 1995, 2002, Spring 2004, Computer Science Department, UVa.
5. Discrete Mathematics 2 (CS302), Spring 2006, Computer Science Department, UVa.
6. Algorithms (CS332), Spring 1995, Computer Science Department, UVa.
7. Algorithms (CS432), Fall 2006, Computer Science Department, UVa.
8. Foundations of Computer Science (CS551), Fall 1992, Computer Science Department, UVa.
9. Theoretical Computer Science (CS660), Fall 1994, Fall 1996, Fall 1998, Fall 1999, Spring 2001, Spring 2002, Spring 2005, Fall 2007, Computer Science Department, UVa.
10. Analysis of Algorithms (CS661), Fall 1993, Spring 1996, Spring 1997, Spring 1998, Spring 1999, Spring 2000, Fall 2000, Fall 2004, Fall 2005, Spring 2007, Spring 2008, Computer Science Department, UVa.
11. VLSI CAD (CS851), Spring 1994, Computer Science Department, UVa.
12. Advanced Topic in Computer Science Theory (CS851), Fall 2001, Computer Science Department, UVa.
13. Geometric Algorithms (CS851), Spring 1992, Computer Science Department, UVa.
14. Algorithms and Problem Solving (CS180), Spring 1991, Computer Science Department, UCLA.
15. Computational Geometry (CS217), Computer Science Department, 1988, UCLA.
16. Automata Theory and Formal Languages (CS181), 1987-1990, Computer Science Department, UCLA.
17. Programming Using Pascal, 1983-1984, Computer Science Department, Princeton University.
18. Problem Solving With APL, 1980-1981, Emek High School, Los Angeles.

Computer Languages

1. HTML
2. C
3. Pascal
4. Common LISP
5. Interlisp-D
6. Fortran 66
7. Fortran 77
8. APL
9. Prolog
10. Basic
11. COBOL
12. Assembly
13. Algol 68
14. PL/I
15. FP
16. Miranda
17. MIX
18. IBM JCL

Operating Systems / Environments

1. UNIX
2. Windows-95/98
3. Windows-NT
4. X-Windows
5. Apple MacIntosh

6. IBM TSO
7. IBM OS360
8. IBM OS370
9. TOPS-20
10. Xerox Interlisp-D
11. Xerox Star
12. Symbolics 3600

Hardware Platforms

1. PC
2. SUN Workstations
3. Apple MacIntosh
4. Apple Lisa
5. PDP11
6. Vax 11/750
7. Vax 11/780
8. TI Professional PC
9. Symbolics 3600
10. Xerox Dolphin (1108)
11. Xerox 530 mainframe
12. TI Explorer
13. HP Bobcat
14. IBM 360
15. IBM 370
16. Cray XMP

Exhibit 2

Exhibit 2: References Cited in This Declaration

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4. Patent 6,864,904 File Wrapper, Girafa.com, U.S. Patent and Trademark Office, 260 pages.
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Exhibit 3

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Exhibit 4

Exhibit 4: The Girafa.com Patent 6,864,904 at issue in this litigation

6864904 Ran, S., Barnoon, E., and Yarom, Y., “Framework for Providing Visual Context to WWW Hyperlinks”, Patent 6,864,904, Filed December 6, 1999, Issued March 8, 2005, 20 pages.

(12) **United States Patent**
Ran et al.

(10) **Patent No.:** **US 6,864,904 B1**
(45) **Date of Patent:** **Mar. 8, 2005**

(54) **FRAMEWORK FOR PROVIDING VISUAL
CONTEXT TO WWW HYPERLINKS**

(75) Inventors: **Shirli Ran**, Savion (IL); **Eldad
Barnoon**, Tel Aviv (IL); **Yuval Yarom**,
Ra'anana (IL)

(73) Assignee: **Girafa.com Inc.**, Wilmington, DE (US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 224 days.

(21) Appl. No.: **09/708,191**

(22) Filed: **Nov. 8, 2000**

Related U.S. Application Data

(60) Provisional application No. 60/169,328, filed on Dec. 6,
1999.

(51) **Int. Cl.** **G09G 5/00**

(52) **U.S. Cl.** **345/760; 345/744; 345/763;
345/838**

(58) **Field of Search** **345/744, 760,
345/763, 838; 715/501.1, 526, 513**

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the 9th Annual ACM Symposium on user-interface software
and technology.

Mary Czerwinski, et al, "Visualizing implicit queries for
information management and retrieval", published in May
1999, in the proceedings of the ACM Conference on human
factors in computing systems.

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(57) **ABSTRACT**

A method and a system for presenting Internet information
to a user including providing to a user a visual image of a
web page containing at least one hyperlink, and at least
partially concurrently providing a visual image of another
web page of at least one web site which is represented by the
at least one hyperlink.

56 Claims, 11 Drawing Sheets

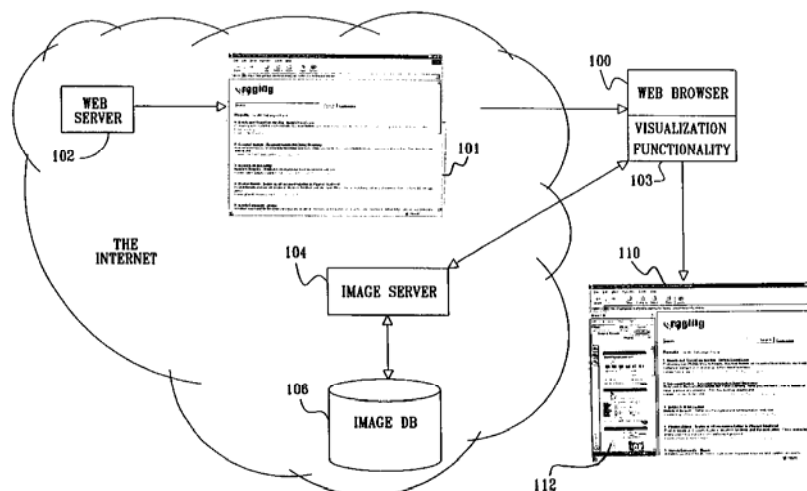


FIG. 1

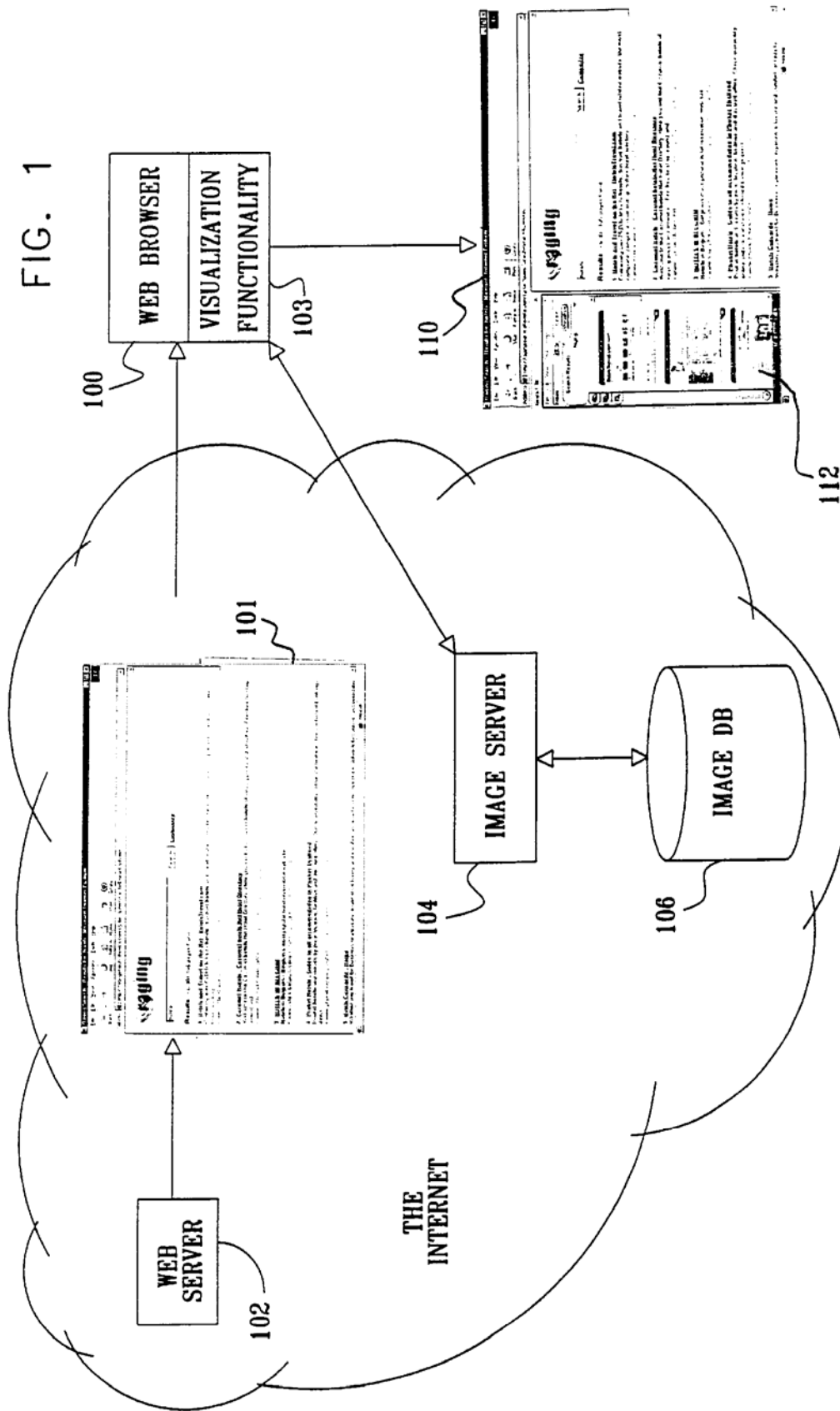


FIG. 2

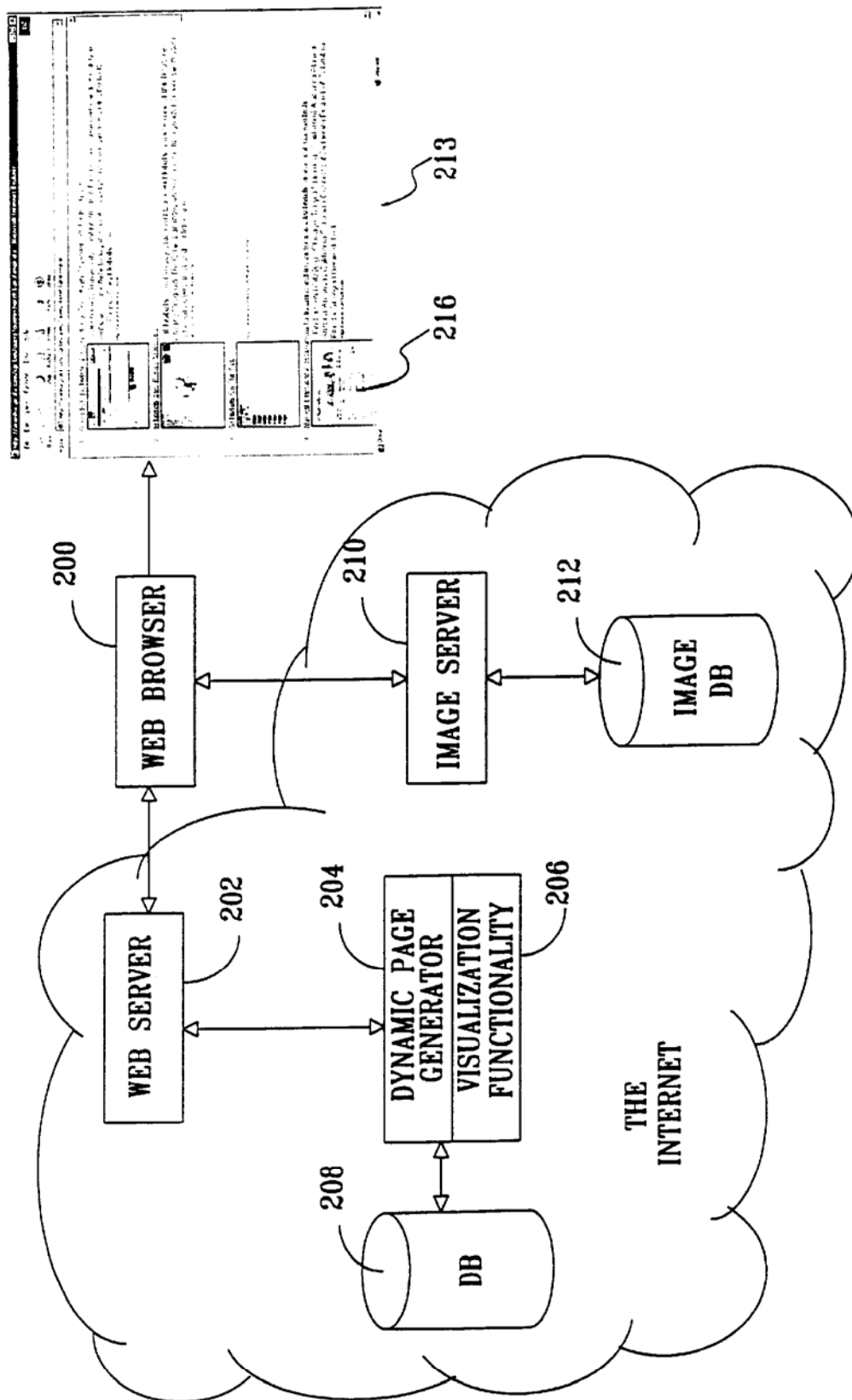


FIG. 3

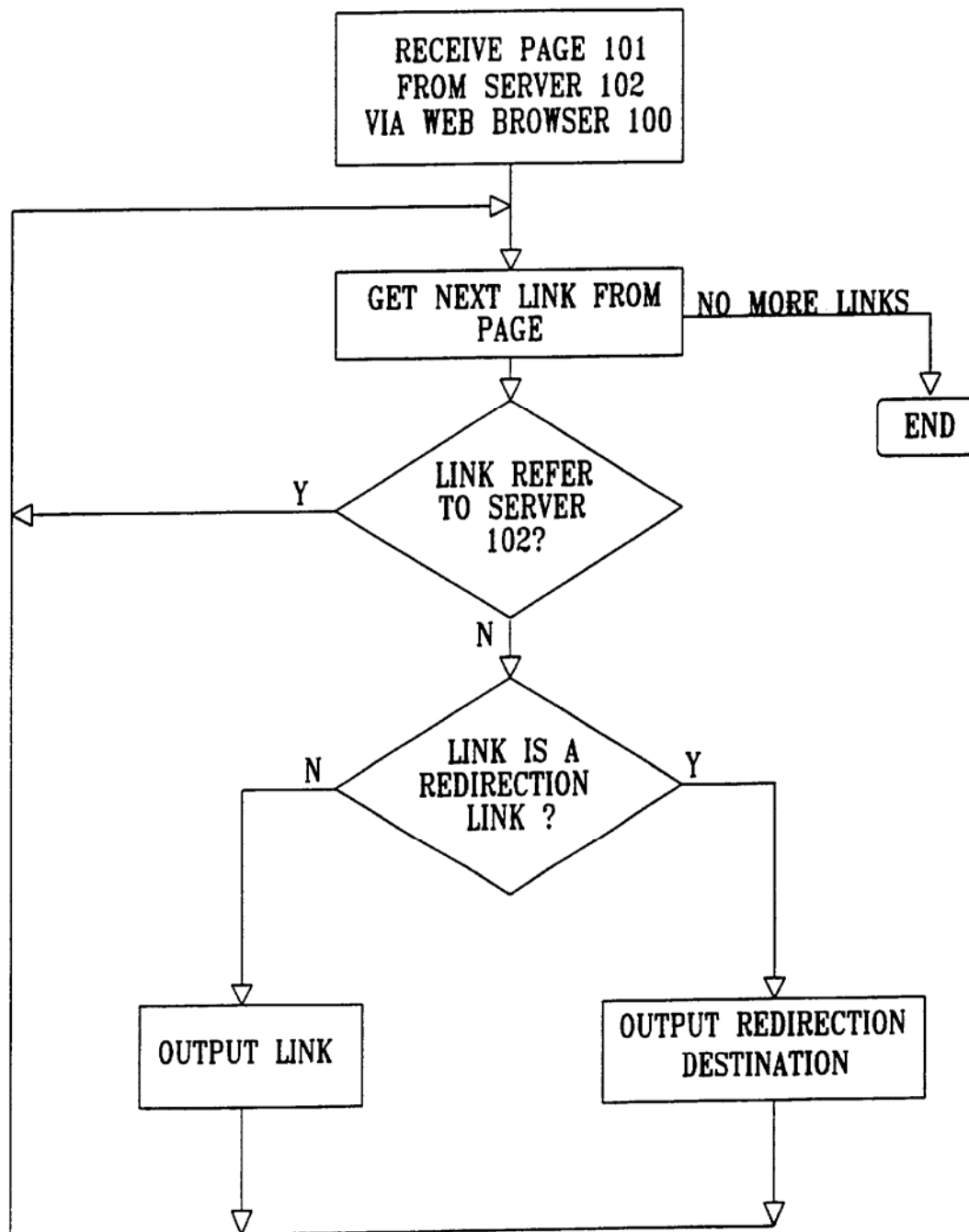


FIG. 4

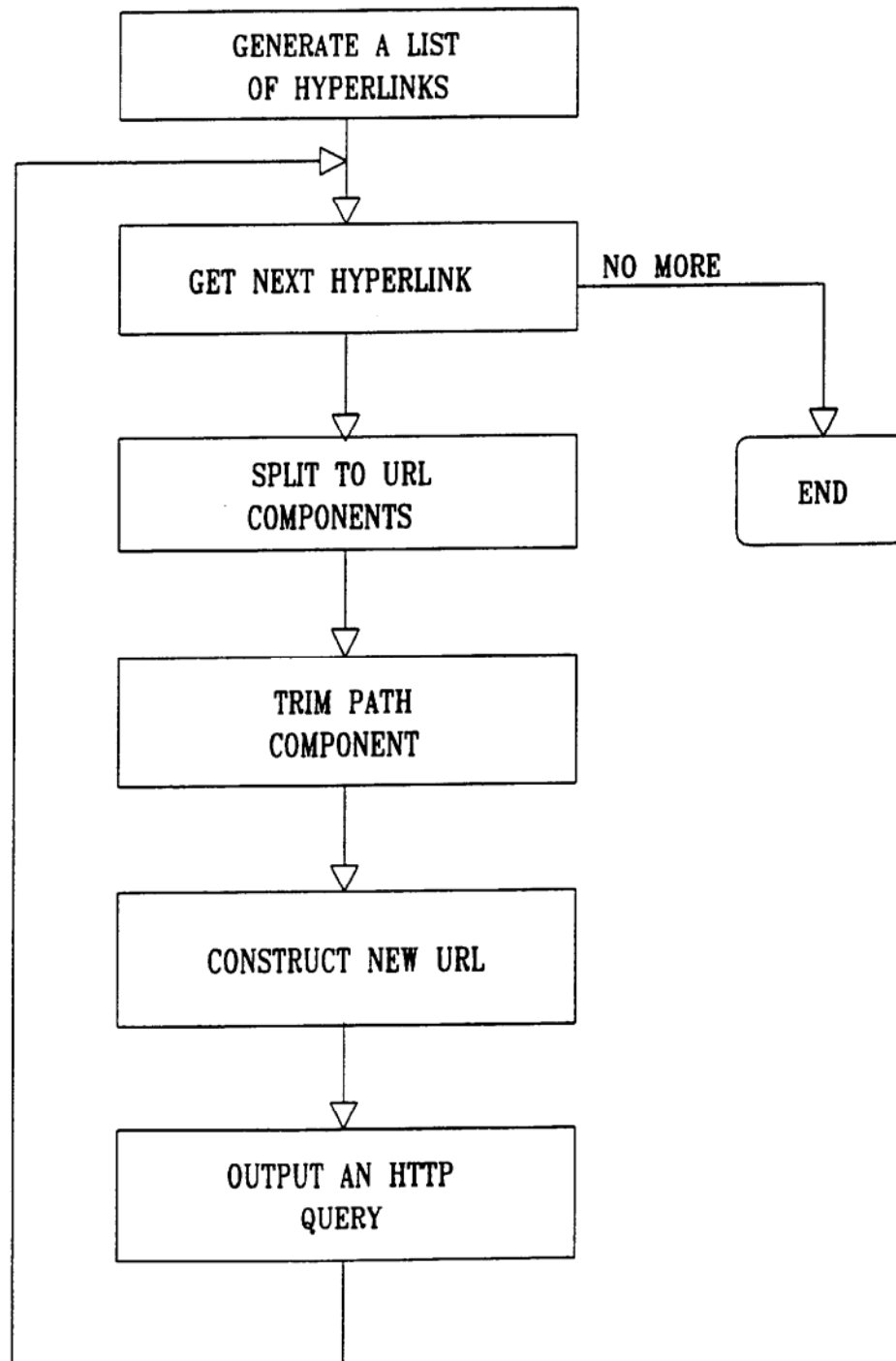


FIG. 5

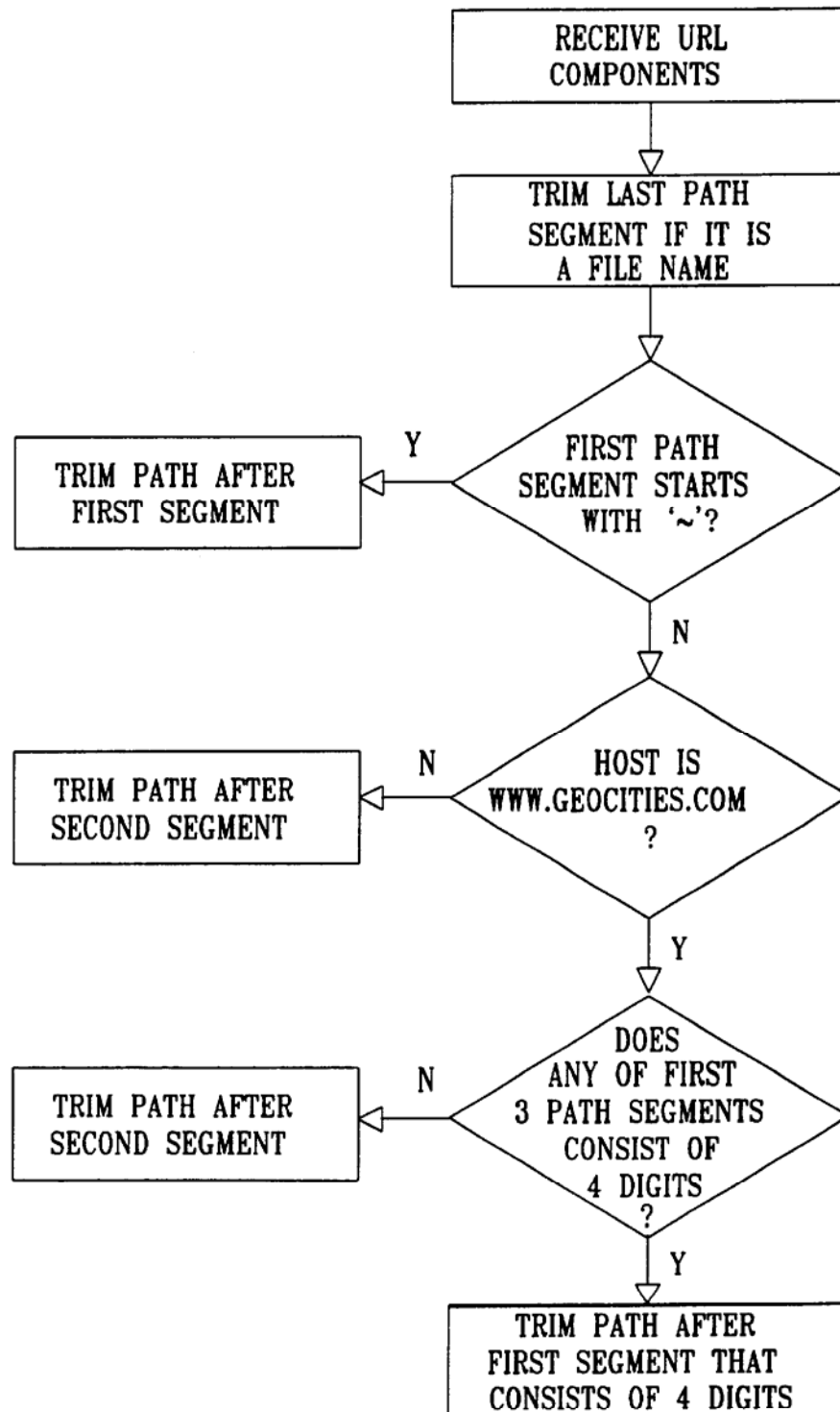


FIG. 6

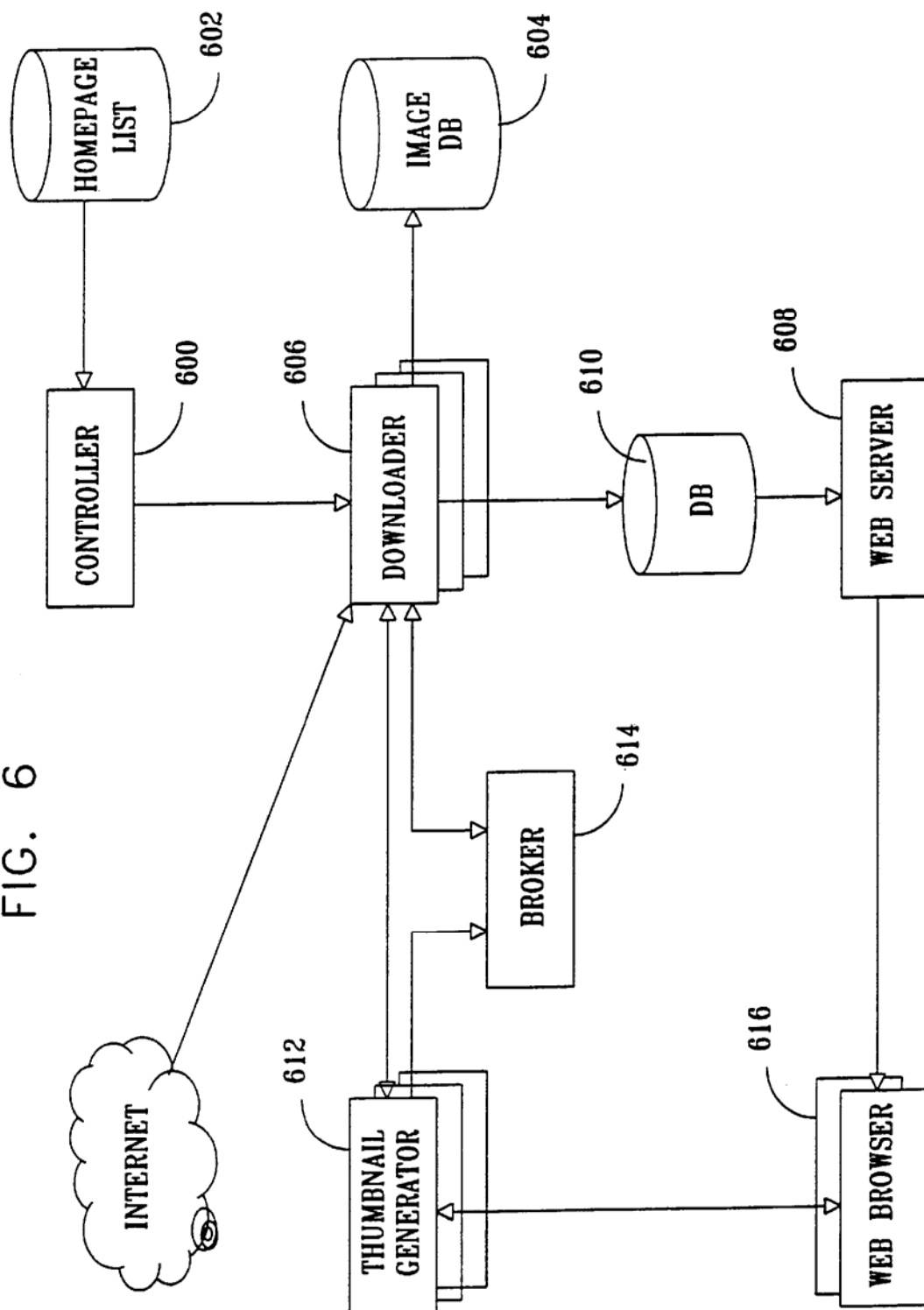


FIG. 7

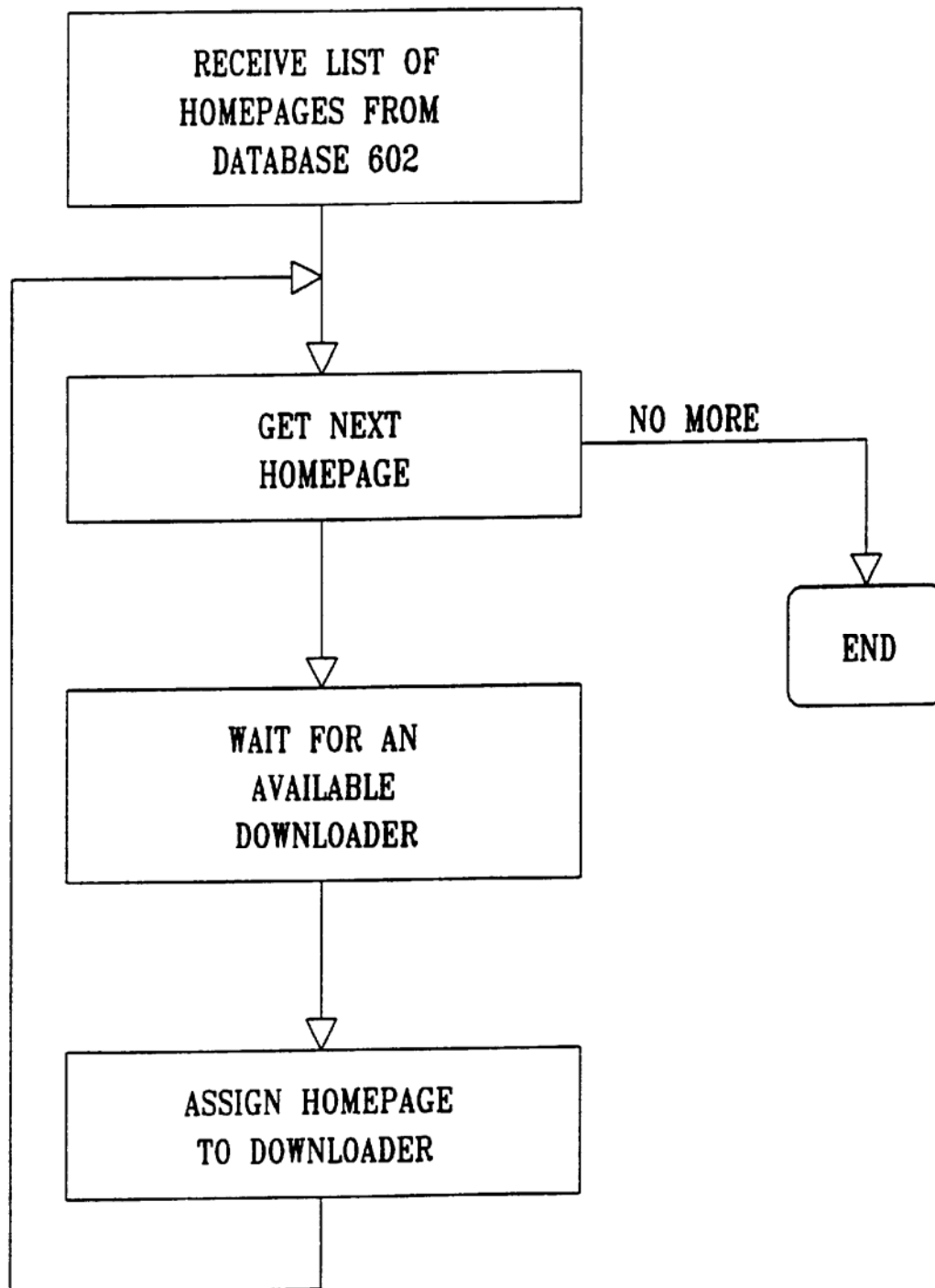


FIG. 8

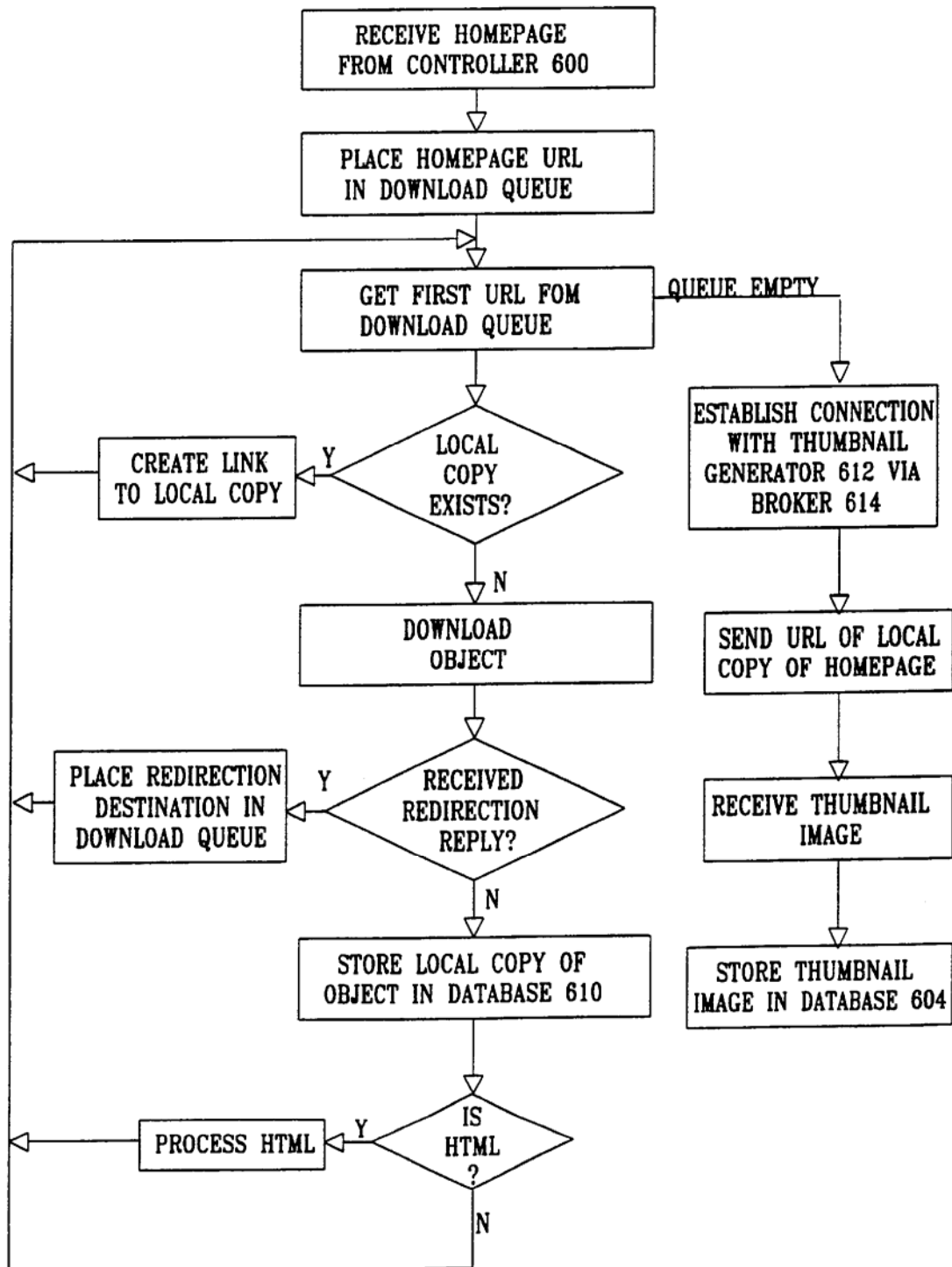
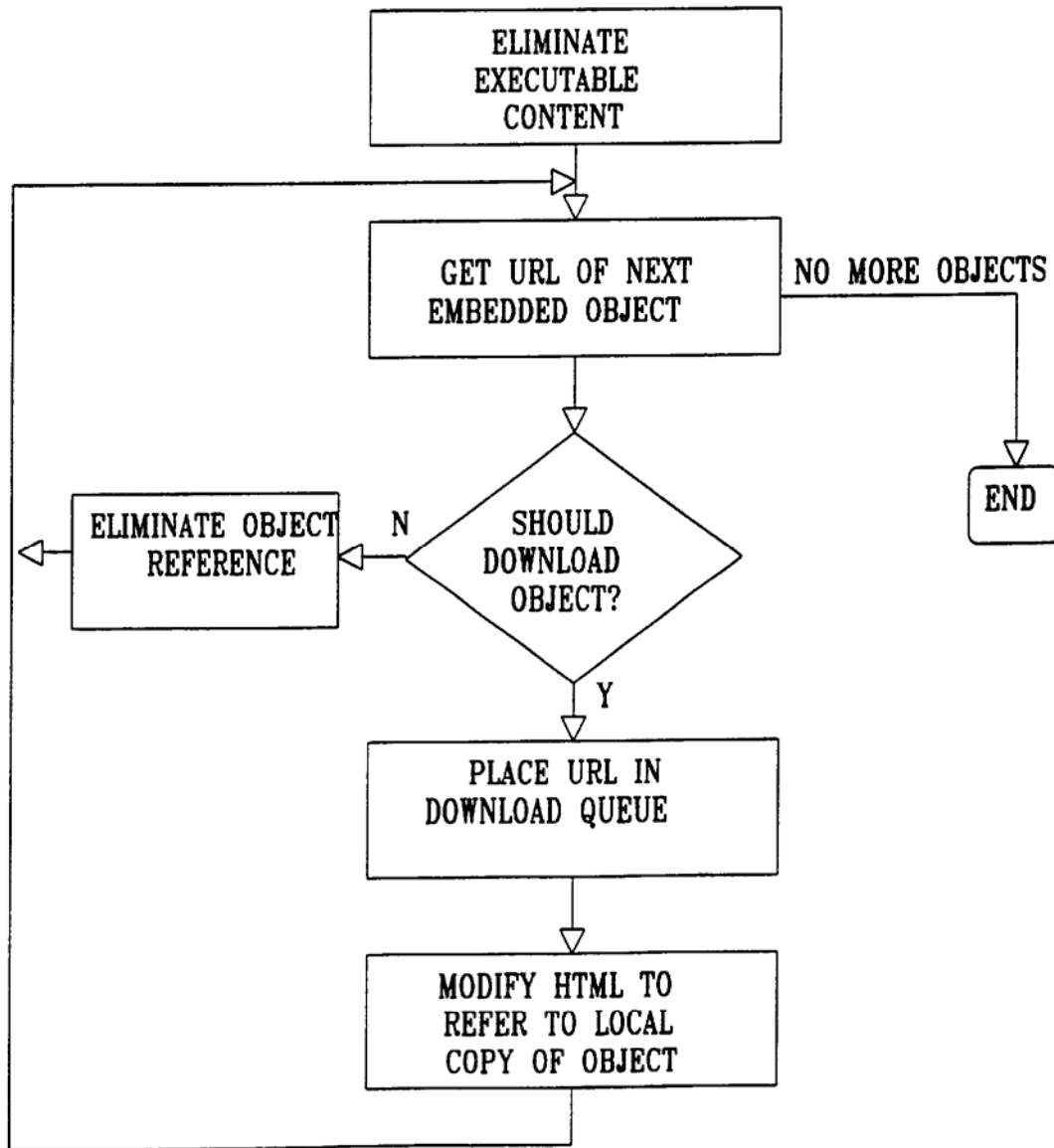


FIG. 9



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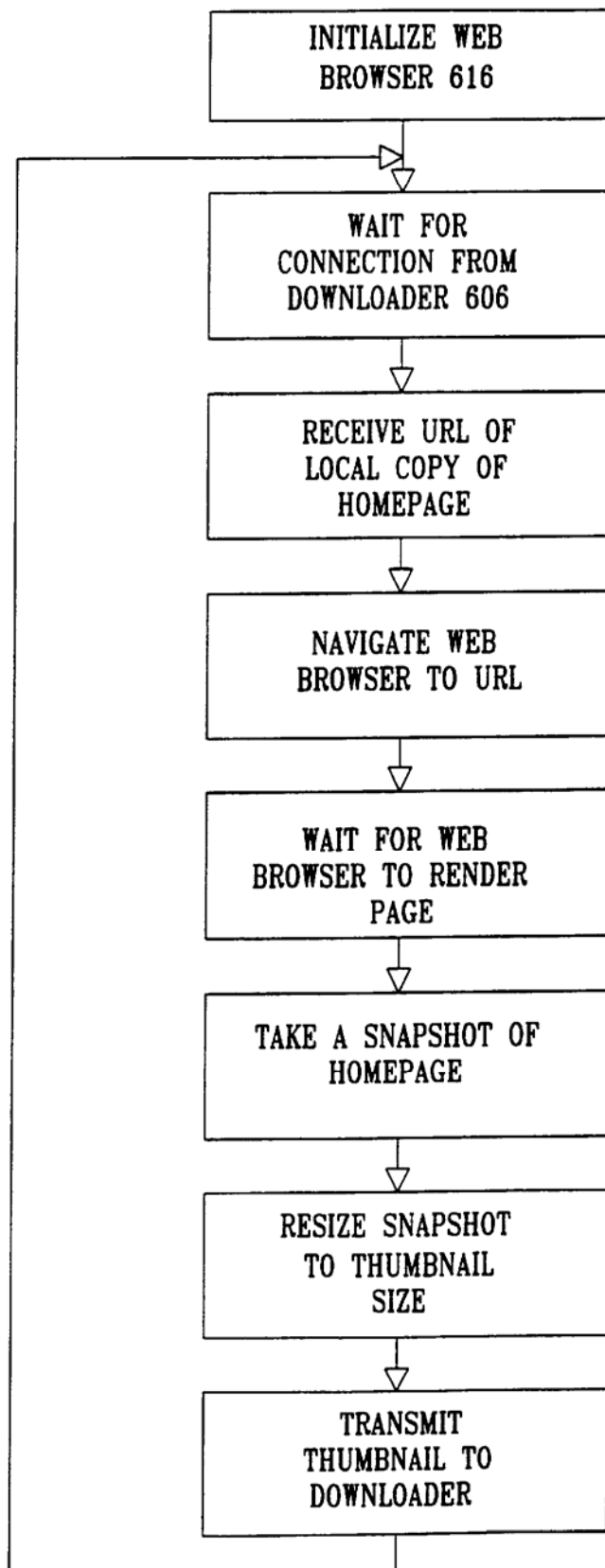
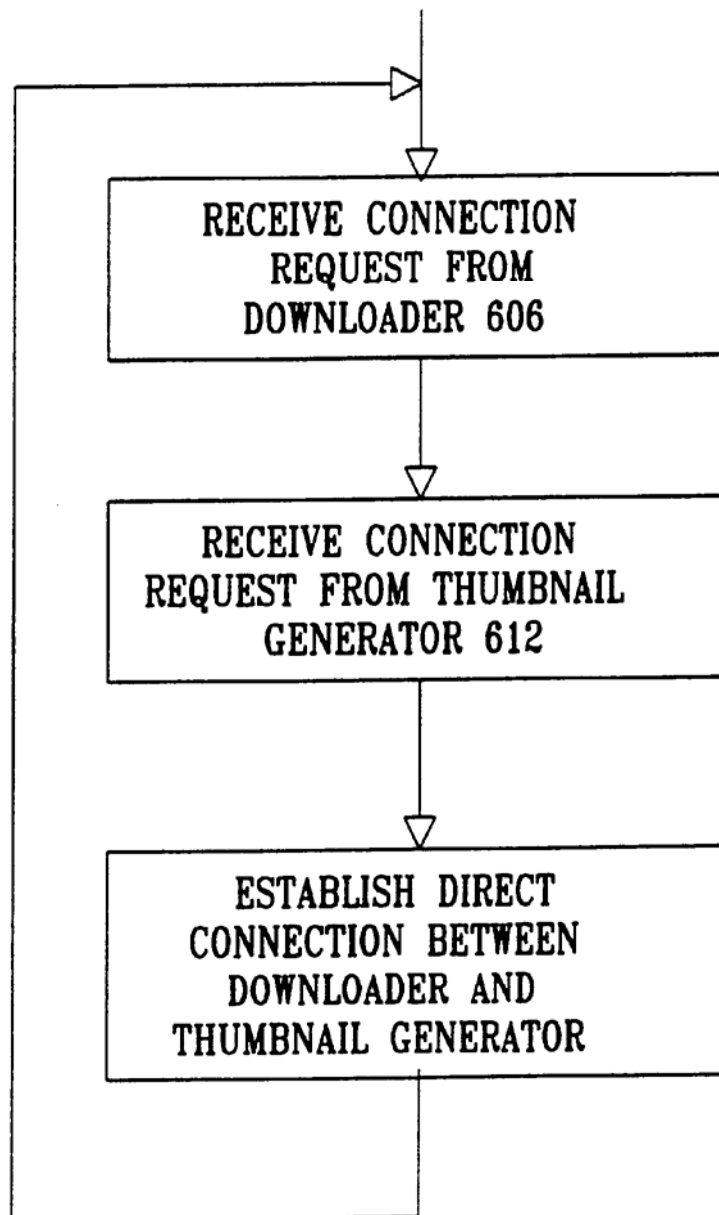


FIG. 10

FIG. 11



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**FRAMEWORK FOR PROVIDING VISUAL
CONTEXT TO WWW HYPERLINKS****PRIORITY CLAIM**

This application claims priority from Provisional Appli-
cation Ser. No. 60/169,328, filed Dec. 6, 1999.

The material on the compact discs labeled COPY 1 and
COPY 2 is incorporated by reference. The compact discs are
identified in the LIST OF APPENDICES below.

FIELD OF THE INVENTION

The present invention relates to Internet methodologies
and systems generally and more particularly to systems and
methodologies for displaying information received over the
Internet.

BACKGROUND OF THE INVENTION

The following U.S. patents are believed to represent the
current state of the art: U.S. Pat. Nos. 6,101,510; 6,016,494;
6,011,537; 5,973,692.

The following disclosures are also believed to be relevant
to the subject matter of the present invention:

R. J. Yarger, G. Reese, and T. King "MySQL & mSQL,"
O'REILLY & Associates Inc, 1999, ISBN 1-56592-
434-7;

B. Laurie, and P. Laurie "Apache the Definitive Guide,
2nd edition," O'REILLY & Associates Inc. 1999, ISBN
1-56592-528-9;

C. Musciano, and B. Kennedy "HTML the Definitive
Guide, 3rd edition," O'REILLY & Associates Inc,
1998, ISBN 1-56592-492-4;

Libwww <http://www.w3.org/Library>;

T. Berners-Lee, R. Fielding, and L. Masinter "Uniform
Resource Identifiers (URI): Generic Syntax", RFC
2396, August 1998.

SUMMARY OF THE INVENTION

The present invention seeks to provide a particularly
beneficial methodology and system for displaying informa-
tion received over the Internet.

There is thus provided in accordance with a preferred
embodiment of the present invention a method for present-
ing Internet information to a user. The method includes
providing to a user a visual image of a web page containing
at least one hyperlink, and at least partially concurrently
providing a visual image of another web page of at least one
web site which is represented by said at least one hyperlink.

Further in accordance with a preferred embodiment of the
present invention the visual image of said another web page
is displayed alongside the visual image of said web page.

Preferably the visual image of another web page appears
hovering over said hyperlink.

Still further in accordance with a preferred embodiment of
the present invention the visual image of said another web
page is displayed within the visual image of said web page.
The visual image of another web page appears hovering over
said hyperlink.

Additionally in accordance with a preferred embodiment
of the present invention the visual images of a plurality of
other web pages represented by at least one hyperlink are
displayed simultaneously along with said visual image of a
web page containing at least one hyperlink.

Furthermore in accordance with a preferred embodiment
of the present invention the web page comprises an HTML
page.

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Moreover in accordance with a preferred embodiment of
the present invention, the method also includes providing a
visual image of another web page includes employing a web
browser including visualization functionality which inter-
faces via the Internet with an image server.

Preferably the visualization functionality is operative to
download via the image server from an image database
images of web pages which are referenced in hyperlinks
contained in the web page and to provide to a user, via the
web browser, an annotated web page.

Additionally or alternatively the annotated web page
includes the web page having alongside it images of home-
pages linked with the web page.

Further in accordance with a preferred embodiment of the
present invention, the method includes providing a visual
image of another web page and includes employing a web
browser which interfaces via the Internet with a web server
including visualization functionality.

Preferably the visualization functionality operates to
embed commands to the web browser to download, via an
image server, images of web pages which are referenced in
hyperlinks contained in the web page and to provide to a
user, via the web browser, an annotated web page.

Additionally the annotated web page may include the web
page having within it images of homepages linked with the
web page.

Additionally in accordance with a preferred embodiment
of the present invention the visualization functionality
includes generation of a list of hyperlinks from a web page,
elimination of links which refer back to a web server sending
said web page, determination of whether redirection links
are present and if so, visualizing an ultimate destination
thereof and visualizing remaining hyperlinks.

Further in accordance with a preferred embodiment of the
present invention the visualization functionality may also
include receiving a list of hyperlinks, splitting a URL of each
hyperlink into URL components including at least a path
component and a host component, trimming a path compo-
nent based on the consideration of finding the most repre-
sentative image of a given web page and constructing a new
URL including a trimmed path component.

There is also thus provided in accordance with a preferred
embodiment of the present invention a method for generat-
ing a web page image database. The method includes
receiving a list of URLs corresponding to web pages, the
images of which it is desired to download into an image
database, operating a multiplicity of downloaders simulta-
neously by supplying to each downloader one URL at a time,
causing each downloader to retrieve from the Internet, a web
page and embedded objects corresponding to the URL
supplied to it, causing a thumbnail generator to render the
web page and causing said thumbnail generator to shrink
said rendered image of the web page and supply it to the
downloader.

Further in accordance with a preferred embodiment of the
present invention the method also includes deleting execut-
able content from the web page.

Still further in accordance with a preferred embodiment
of the present invention the method includes causing each
downloader to retrieve from the Internet, a web page and
embedded objects corresponding to the URL supplied to it
and causing a thumbnail generator to operate a correspond-
ing web browser to render the web page employ a locally
stored copy of said web page and said embedded objects.

Additionally in accordance with a preferred embodiment
of the present invention the method includes employing a

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web server for providing said locally stored copy of said web page and of said embedded objects to said web browser.

Furthermore in accordance with a preferred embodiment of the present invention the visual image of another web page appears hovering over said hyperlink.

There is further provided in accordance with another preferred embodiment of the present invention a system for presenting Internet information to a user including a first functionality providing to a user a visual image of a web page containing at least one hyperlink and a second functionality operative at least partially concurrently with said first functionality for providing a visual image of another web page of at least one web site which is represented by said at least one hyperlink.

Further in accordance with a preferred embodiment of the present invention the visual image of said another web page is displayed alongside the visual image of said web page.

Still further in accordance with a preferred embodiment of the present invention the visual images of said another web page is displayed within the visual image of said web page.

Furthermore in accordance with a preferred embodiment of the present invention the visual images of a plurality of other web pages represented by at least one hyperlink are displayed simultaneously along with said visual image of a web page containing at least one hyperlink.

Additionally in accordance with a preferred embodiment of the present invention the web page comprises an HTML page.

Further in accordance with a preferred embodiment of the present invention the second functionality comprises third functionality employing a web browser including visualization functionality which interfaces via the Internet with an image server.

Preferably the visualization functionality is operative to download via the image server from an image database images of web pages which are referenced in hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page. Additionally or alternatively the annotated web page includes the web page having alongside it images of homepages linked with the web page.

Further in accordance with a preferred embodiment of the present invention the second functionality comprises fourth functionality employing a web browser which interfaces via the Internet with a web server including visualization functionality.

Preferably the visualization functionality is operative to embed commands to the web browser to download, via an image server, images of web pages which are referenced in hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page. Additionally or alternatively the annotated web page includes the web page having within it images of homepages linked with the web page.

Further in accordance with a preferred embodiment of the present invention the visualization functionality includes the generation of a list of hyperlinks from a web page, the elimination of links which refer back to a web server sending said web page, the determination of whether redirection links are present and if so, visualizing an ultimate destination thereof and the visualizing remaining hyperlinks.

Still further in accordance with a preferred embodiment of the present invention the visualization functionality includes receiving a list of hyperlinks, splitting a URL of each hyperlink into URL components including at least a path

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component and a host component, trimming a path component based on the consideration of finding the most representative image of a given web page and constructing a new URL including a trimmed path component.

Furthermore in accordance with a preferred embodiment of the present invention the visual image of another web page appears hovering over said hyperlink.

Additionally in accordance with a preferred embodiment of the present invention the visual image of another web page appears hovering over said hyperlink.

Additionally or alternatively the visual image of another web page appears hovering over said hyperlink. Preferably the visual image of another web page appears hovering over said hyperlink.

Furthermore the visual image of another web page may appear to hover over said hyperlink.

Still further in accordance with a preferred embodiment of the present invention the visual image of another web page appears hovering over said hyperlink.

There is provided in accordance with yet another preferred embodiment of the present invention a system for generating a web page image database, the system includes at least one downloader receiving one URL at a time and retrieving from the Internet a web page and embedded objects corresponding to the URL received by it and at least one thumbnail generator operative to render the web page, shrink said rendered image of the web page and supply said rendered image to the downloader.

Further in accordance with a preferred embodiment of the present invention the at least one downloader is operative to delete executable content from the web page.

Still further in accordance with a preferred embodiment of the present invention each downloader retrieves from the Internet, a web page and embedded objects corresponding to the URL received by it and locally stores a copy of said web page and said embedded objects and causes said thumbnail generator to render the web page by employing said locally stored copy of said web page and said embedded objects.

Preferably the system also includes a web server providing said locally stored copy of said web page and of said embedded objects.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be understood and appreciated more fully from the following detailed description, taken in conjunction with the drawings in which:

FIG. 1 is a simplified partially pictorial, partially block diagram illustration of a system and methodology for displaying information received over the Internet in accordance with a preferred embodiment of the present invention;

FIG. 2 is a simplified partially pictorial, partially block diagram illustration of a system and methodology for displaying information received over the Internet in accordance with another preferred embodiment of the present invention;

FIG. 3 is a simplified flow chart of part of visualization functionality employed in the system and methodology of FIG. 1;

FIG. 4 is a simplified flow chart of visualization functionality employed in accordance with a preferred embodiment of the present invention;

FIG. 5 is a simplified flow chart of path component trimming functionality employed in the embodiment of FIG. 3;

FIG. 6 is a simplified block diagram illustration of a system for generating an image database useful in the system and methodology of FIGS. 1 and 2;

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FIG. 7 is a flow chart illustrating operation of a controller forming part of the system of FIG. 6;

FIG. 8 is a floss chart illustrating operation of a downloader forming part of the system of FIG. 6;

FIG. 9 is a flow chart illustrating operation of a process HTML algorithm employed in the downloader of FIG. 8;

FIG. 10 is a flow chart illustrating operation of a thumbnail generator forming part of the system of FIG. 6; and

FIG. 11 is a flow chart illustrating operation of a broker forming part of the system of FIG. 6.

LIST OF APPENDICES

Appendix A is a software listing in hexadecimal form of software suitable for providing the visualization functionality of FIG. 1 when installed in accordance with installation instructions set forth hereinbelow;

Appendix B is a software listing in hexadecimal form of software suitable for providing the functionality of FIG. 6 when installed in accordance with installation instructions set forth hereinbelow;

Appendix C is a software listing in hexadecimal form of software suitable for providing the functionality of an image server of FIG. 1 and FIG. 2 when installed in accordance with installation instructions set forth hereinbelow.

The foregoing software listing are protected by copyright in the USA and in all other jurisdictions.

Appendix A, Appendix B and Appendix C are included on Copy 1 and Copy 2 of the CD-Rs attached herewith to the present application. Each CD-R includes the files GIRAF.A.hex (Appendix A) of Nov. 7, 2000 and of length 3,052,711 bytes; ARANHA.hex (Appendix B) of Nov. 7, 2000 and of length 5,498,984 bytes and IMAGE.hex (Appendix C) of Nov. 7, 2000 and of length 217,154 bytes.

DESCRIPTION OF PREFERRED EMBODIMENTS

Reference is now made to FIG. 1, which is a simplified partially pictorial, partially block diagram illustration of a system and methodology for displaying information received over the Internet in accordance with a preferred embodiment of the present invention. As seen in FIG. 1, a web browser 100, such as Microsoft Internet Explorer 5.5, typically resident on a PC, such as a Dell Dimension L733 running Microsoft Windows 98, receives a web page 101, such as an HTML page, over the Internet from a web server 102. The web browser 100 preferably includes visualization functionality 103 which interfaces, typically via the Internet, with an image server 104, such as a Dell Power Edge 2450 running Apache 1.3.12 on an OpenBSD 2.7 operating system.

The image server 104 interfaces with an image database 106, which is preferably a Dell Power Edge 2450 running MySQL 3.23.25 on an OpenBSD 2.7 operating system which is preferably loaded by using functionality of the type described hereinbelow with reference to FIG. 7.

The visualization functionality 103 is operative to download via the image server 104 from the image database 106 images of web pages which are referenced in hyperlinks contained in the web page 101 and to provide to a user, via the web browser 100, an annotated web page 110, which preferably includes the web page 101 having alongside it images 112 of homepages linked with web page 101.

Reference is now made to FIG. 2, which is a simplified partially pictorial, partially block diagram illustration of a

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system and methodology for displaying information received over the Internet in accordance with another preferred embodiment of the present invention. As seen in FIG. 2, a web browser 200, typically resident on a PC, such as a Dell Dimension L733 running Microsoft Windows 98, interfaces, typically via the Internet, with a web server 202, such as a Dell Power Edge 2450 running Apache 1.3.12 on an OpenBSD 2.7 operating system.

The web server 202 interfaces with a dynamic page generator 204, such as a P.H.P. 4.0.2, in which is preferably installed a visualization functionality 206, which is described hereinbelow in greater detail. The dynamic page generator 204 interfaces with a database 208, such as a Dell Power Edge 2450 running MySQL 3.23.25 on an OpenBSD 2.7 operating system.

The web browser 200 preferably interfaces with an image server 210, such as a Dell Power Edge 2450 running Apache 1.3.12 on an OpenBSD 2.7 operating system. The image server 210 interfaces with an image database 212, which is preferably a Dell Power Edge 2450 running MySQL 3.23.25 on an OpenBSD 2.7 operating system, which is preferably loaded by using functionality of the type described hereinbelow with reference to FIG. 7.

The visualization functionality 206 is operative to embed within a dynamically generated web page, such as an HTML page, commands to the web browser 200 to download via the image server 210 from the image database 212 images of web pages which are referenced in hyperlinks contained in a web page 213 and to provide to a user, via the web browser 200, the web page 213 annotated to include therewithin images 216 of homepages linked therewith.

It is appreciated that either or both of the embodiments of FIGS. 1 and 2 may provide images of web pages which are referenced in hyperlinks contained in a web page either alongside or within that web page. It is also appreciated that either or both of the embodiments FIGS. 1 and 2 may provide images of web pages which are referenced in hyperlinks contained in a web page, which images hover either over or alongside the hyperlinks. It is appreciated that the visual image of another web page may function as a hyperlink.

Reference is now made to FIG. 3, which is a simplified flow chart of part of visualization functionality employed in the system and methodology of FIG. 1. The flow chart of FIG. 3 illustrates generation of a list of hyperlinks from a web page, such as web page 101 in the embodiment of FIG. 1 received from a web server 102.

As each link is extracted from web page 101, an examination is made in order to eliminate links which refer back to web server 102 and to determine whether redirection links are present. This is typically done by searching for the presence of a string "http://" encoded in the URL, which characterizes a redirection link. In the case of links, which appear to be redirection links, only the ultimate destination is listed. In the case of links which do not appear to be redirection links, the links themselves are listed. The resulting list is employed as an input to the functionality of FIG. 4.

In the illustrated embodiment of FIG. 3, all of the hyperlinks are processed. Alternatively, not all of the hyperlinks need be processed. In such a case, a user may decide which hyperlinks to process.

Reference is now made to FIG. 4, which is a simplified flow chart of visualization functionality employed in accordance with a preferred embodiment of the present invention. As seen in FIG. 4, a list of hyperlinks is received. This list

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may be derived from a web page such as web page **101** in the embodiment of FIG. 1 using the functionality of FIG. 3 or may be provided by dynamic page generator **204** and obtained via database **208** in the embodiment of FIG. 2.

If hyperlinks are present, the URL of each hyperlink is split into URL components. For example, if the URL of a hyperlink appears as follows:

`http://www.microsoft.com:80/windows2000/upgrade/compat/search/computers.asp?page=2&send=1&Order=Sort+by+Company&CN=Dell&PN=&PT=`

The components thereof include the following:

Scheme: http

Host: www.microsoft.com

Port: 80

Path: /windows2000/upgrade/compat/search/computers.asp

Query: page=2&send=1&Order=Sort+by+Company&CN=Dell&PN=& PT=

The path component may be trimmed based on the consideration of finding the most representative image of a given web page. A flow chart illustrating a preferred algorithm for making this determination appears in FIG. 5 and is described hereinbelow.

Thus, in the above example, the trimmed path component appears as follows:

`/windows2000/upgrade`

Following any trimming of the path component, a new URL is constructed from the scheme, host, port and trimmed path components. This URL is employed for outputting an http query to an image server, such as image server **104** in the embodiment of FIG. 1 or **210** in the embodiment of FIG. 2.

A preferred form of http query in the above example appears as follows:

`http://wb1.girafa.com/srv/i?`

`u=http://`

`www.microsoft.com%2fwindows2000%2fupgrade`

Reference is now made to FIG. 5, which is a simplified flow chart of path component trimming functionality employed in the embodiment of FIG. 4. As seen in FIG. 5, the path component trimming functionality comprises receipt of the URL components after splitting thereof, as described hereinabove with reference to the flowchart of FIG. 4. Information from the host component of the URL is employed in trimming of the path component of the URL. Each path component comprises a plurality of path segments.

If the last path segment in a path component is a file name, this path segment is removed. Determination whether a path component is a file name is typically carried out by examining the suffix thereof to determine whether it is a known suffix representing a file name.

If the first path segment starts with a "~", which typically designates a home directory in a Unix system, the path component is trimmed after that first path segment.

If the host is not www.geocities.com, the path component is trimmed after the second path segment.

If the host is www.geocities.com and any of the first three path segments consists of 4 digits, the path component is trimmed after the first segment that consists of 4 digits.

If the host is % www.geocities.com and none of the first three path segments consists of 4 digits, the path component is trimmed after the second segment.

Reference is now made to FIG. 6, which is a simplified block diagram illustration of a system for generating an image database useful in the system and methodology of FIGS. 1 and 2. As seen in FIG. 6, a controller **600** receives a list **602** of homepages, the images of which it is desired to

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download into an image database **604**, such as image database **106** in the embodiment of FIG. 1 or image database **212** in the embodiment of FIG. 2.

The controller **600** operates a multiplicity of downloaders **606** simultaneously by supplying to each downloader one URL at a time. Each downloader **606** retrieves from the Internet, the homepage and the embedded objects corresponding to the URL supplied to it by the controller **600** and deletes therefrom executable block content. The resulting output of the downloaders **606** is supplied to a web server **608** via a database **610**.

Each downloader **606** establishes a connection with one of a plurality of thumbnail generators **612** via a broker **614**. Once this connection has been established, a URL of a locally stored copy of a downloaded homepage, which is stored in database **610**, is sent to the thumbnail generator **612** with which the connection has been established.

Each thumbnail generator **612** operates a corresponding web browser **616** to download via web server **608** the locally stored copy of the homepage, which is stored in database **610**. The thumbnail generators **612** each receive a rendered image of the homepage from a corresponding web browser **616** and shrink it and supply it to the downloader **606** with which the connection has been established.

It is appreciated that normally the number of downloaders exceeds the number of thumbnail generators by at least an order of magnitude. The broker **614** coordinates interaction between a thumbnail generator and a downloader.

Reference is now made to FIG. 7, which is a flow chart illustrating operation of a controller forming part of the system of FIG. 6. A list of homepages is received from database **602** (FIG. 6). Each homepage is taken from the list and downloaded by a downloader **606** (FIG. 6). The functionality of FIG. 7 ensures that a predetermined number of downloaders operate simultaneously, so long as the list of undownloaded homepages is sufficiently long.

Reference is now made to FIG. 8, which is a flow chart illustrating operation of a downloader forming part of the system of FIG. 6. As seen in FIG. 8, each downloader maintains a download queue for the homepage which the downloader is currently downloading. The download queue includes a list of URLs of objects in the homepage as well as the homepage object that require downloading in order to provide a local copy of the homepage.

For each URL in the download queue, an inquiry is made whether a local copy of the object corresponding thereto already exists. If so, a link to that local copy is created. If not, an attempt is made to download the object. If upon attempting to download the object, the downloader is informed that the object is located on another URL. i.e. by the receipt of redirection reply, that URL is placed in the download queue.

If, the download is successful, the downloaded object is stored in database **610** (FIG. 6) as a local copy. If the downloaded object is an HTML page, then the HTML page is processed, preferably by an algorithm of the type described hereinbelow in FIG. 9.

When the download queue is empty, a connection is established with thumbnail generator **612** (FIG. 6) via broker **614** (FIG. 6). The URL of the local copy of the homepage object is sent to the thumbnail generator **612** and a thumbnail image of the homepage is generated hereby. This thumbnail image is stored in image database **604** (FIG. 6).

Reference is now made to FIG. 9, which is a flow chart illustrating operation of a process HTML algorithm employed in the downloader of FIG. 8. The HTML object

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which is downloaded is scanned, the executable content thereof is eliminated and embedded objects therein are recognized.

For each embedded object a decision is made whether to download it. This decision is made based on the nature of the embedded object and the nature of the reference thereto. Generally, images and HTML objects are downloaded.

URLs of objects to be downloaded are placed in the download queue referred to hereinabove in connection with FIG. 8 and the HTML object is modified to refer to the local copies of the objects to be downloaded. References to objects not to be downloaded are eliminated from the HTML object.

Reference is now made to FIG. 10, which is a flow chart illustrating operation of a thumbnail generator, such as thumbnail generator 612, forming part of the system of FIG. 6. Initially, the thumbnail generator initializes a web browser functionality 616 (FIG. 6). When a connection is established to the thumbnail generator 612 from a downloader 606 (FIG. 6) via a broker 614 (FIG. 6), the thumbnail generator 612 receives the URL of the local copy of the homepage.

The web browser navigates to that URL and renders the homepage. A snapshot of the homepage is taken, typically in bitmap form. This snapshot is resized to a desired thumbnail size and is then transmitted via the downloader 606 for storage in image database 604.

Reference is now made to FIG. 11, which is a flow chart illustrating operation of a broker, such as broker 614, forming part of the system of FIG. 6. The broker receives connection requests from both thumbnail generators 612 (FIG. 6) and downloaders 606 (FIG. 6). When simultaneous requests are pending from both a thumbnail generator and a downloader, the broker establishes a direct connection therebetween. When there exists a surplus of connection requests from either thumbnail generators 612 or downloaders 606, queues of such connection requests may be maintained by the broker.

A preferred method for constructing A Framework For Providing Visual Context To WWW Hyperlinks in accordance with a preferred embodiment of the present invention includes the following steps:

1. Generate Binary file GIRAFA.hex from the computer listing of Appendix A.
2. Decode GIRAFA.hex using a MIME compliant decoder, creating Girafa-1-45.exe.

The method for starting the visualization functionality of FIG. 1 with the program in Appendix A includes the following steps:

1. Provide a computer terminal such as an Intel-based Pentium III 800 MHz computer, configured with Microsoft Windows 98 operating system, and Internet Explorer 5.5 Web Browser.
2. Load the file Girafa-1-45.exe to a temporary directory in the computer terminal provided in step 1, Execute the file Girafa-1-45.exe, and follow the installation instructions. When asked to register, press 'cancel'.
3. Edit the file Girafa.ini in the installation directory, replacing every occurrence of the string 'aranja.girafa.com' with the hostname of the image server, and every occurrence of the number 8080 with the number 80.
4. Start the Internet Explorer browser.
5. In the Internet Explorer Window select the View Menu, in it select the Explorer Bars sub-menu, and in it choose GirafaBar.
6. Follow the registration procedure.

A further preferred method for constructing A Framework For Providing Visual Context To WWW Hyperlinks in

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accordance with a preferred embodiment of the present invention includes the following steps:

1. Generate Binary file ARANHA.hex from the computer listing of Appendix B.

2. Decode ARANHA.hex using a MIME compliant decoder, creating aranha.tgz.

The method for providing the functionality of FIG. 6 with the program in Appendix B includes the following steps:

1. Provide a computer server such as a Dell PowerEdge 2450, with at least 1 GB of main memory, configured with OpenBSD 2.7 operating system, and MySQL 3.23.25 database, and connected to the Internet.

2. Create the directory /var/www/httpd/collect.

3. Create the directory /data1.

4. In /data1 extract the file aranha.tgz by using the command 'tar xvfz aranha.tgz', creating /data1/aranja/aranja.conf, /data1/aranja/capture.zip, /data1/aranja/db.def, /data1/aranja/mod_asis.so, /data1/aranja/bin, /data1/aranja/bin/broker, /data1/aranja/bin/controller, /data1/aranja/bin/downloader, /data1/aranja/bin/downloader.real, and a skeleton image directory /data1/aranja/images.

5. Edit the file /data1/aranja/aranja.conf, replacing the string <SERVER_IP_ADDRESS> with the server's IP address, the string <DBUSER> with a MySQL username that have full access to

database named DATA, and the string <DBPASSWORD> with the password of that user.

6. Create the MySQL database, and initialize it by running the MySQL script /data1/aranja/db.def.

7. Set the environment variable ARANHA_CONF to /data1/aranja/aranja.conf.

8. Execute, in the background, the program /data1/aranja/bin/broker.

9. Install the apache module mod_asis.so by changing directory to /data1/aranja, and executing the command 'apxs -a -i mod_asis.so'.

10. Set the handle_asis as the Apache web server handler for files with suffix '.y'.

11. Start the Apache web server.

12. Provide a computer server such as a Dell PowerEdge 2450, with a display adapter capable of displaying a resolution of 1600x1280x32, such as an ATI ALL-IN-WONDER 128 32MB PCI, and an ethernet adapter such as a Netgear FA310TX, configured with Windows NT Workstation 4.0 SP4, connected via Ethernet to the computer server provided in step 1.

13. Transfer the file data1/aranja/capture.zip to the computer server provided in step 12.

14. Extract capture.zip using a WinZip 7.0 compliant decoder, to the directory c:\appl, creating c:\appl\1Source.dll, c:\app\CaptureWeb.exe, c:\appl\CaptureWeb.ini, c:\app\Mfc42d.dll, c:\app\Mfc42d.dll, c:\app\Mfc42d.dll, c:\app\Msvcrtd.dll, c:\appl\runCaptureWeb.exe.

15. Edit the file c:\app\CaptureWeb.ini replacing the string <SERVER_IP_ADDRESS> with the IP address of the OpenBSD server as provided by Step 1.

16. Execute the application c:\app\runCaptureWeb.exe.

17. Create a list of hostnames the thumbnail of their home pages is to be created, and store in the file /tmp/list.

18. Execute the application /data1/aranja/bin/controller to download the thumbnail images of hosts listed in /tmp/list by running the command '/data1/aranja/bin/controller/tmp/list'.

Another preferred method for constructing A Framework For Providing Visual Context To WWW Hyperlinks in accordance with a preferred embodiment of the present invention includes the following steps:

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1. Generate Binary file IMAGE.hex from the computer listing of Appendix C.
2. Decode IMAGE.hex using a MIME compliant decoder, creating image_server.tgz.

The method for providing the functionality of an image server of FIGS. 1 and 2 includes the following steps:

1. Provide a computer server such as a Dell PowerEdge 2450, with at least 1 GB of main memory, configured with OpenBSD 2.7 operating system. MySQL 3.23.25 database, and an image database created by the software provided in Appendix B, and Connected to the Internet.
2. Extract the binary file of Appendix C using the command 'tar xvfz image_server.tgz', creating the directories image_server and image_server/errs, and the files image_server/aranha.conf, image_server/mod_girafa.so, image_server/errs/empty, and image_servers/errs/notFL.gif
3. Change directory to image_server
4. Install the apache module mod_girafa.so by executing the command 'apxs -a -i mod_girafa.so'
5. copy the file aranha.conf to /data1/aranha/aranha.conf
6. Create the directory /var/www/htdocs/errs
7. Copy the files errs/empty and errs/notFL.gif to /var/www/htdocs/errs
8. Start the apache web server.

It will be appreciated by persons skilled in the art that the present invention is not limited by what has been particularly shown and described hereinabove. Rather the scope of the present invention includes both combinations and sub-combinations of the various features described hereinabove as well as variations and modifications which would occur to persons skilled in the art upon reading the specification and which are not in the prior art.

What is claimed is:

1. A method for presenting Internet information to a user comprising:

providing to a user a visual image of a web page containing at least one hyperlink; and at least partially concurrently

providing a thumbnail visual image of the home page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image server that stores and provides said thumbnail visual image.

2. A method according to claim 1 and wherein said thumbnail visual image is displayed alongside the visual image of said web page.

3. A method according to claim 2 and wherein said thumbnail visual image appears hovering over said hyperlink.

4. A method according to claim 1 and wherein said thumbnail visual image is displayed within the visual image of said web page.

5. A method according to claim 4 and wherein said thumbnail visual image appears hovering over said hyperlink.

6. A method according to claim 1 and wherein a plurality of thumbnail visual images represented by at least one hyperlink are displayed simultaneously along with said visual image of a web page containing at least one hyperlink.

7. A method according to claim 1 and wherein said web page comprises an HTML page.

8. A method according to claim 1 and wherein said providing a thumbnail visual image comprises:

employing a web browser including visualization functionality which interfaces via the Internet with said image server.

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9. A method according to claim 8 and wherein said visualization functionality is operative to download via the image server from an image database images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.

10. A method according to claim 8 and wherein said visualization functionality comprises:

generation of a list of hyperlinks from a web page;

elimination of links which refer back to a web server sending said web page;

determination of whether redirection links are present and if so, providing thumbnail visual images of ultimate destinations thereof; and

providing thumbnail visual images of remaining hyperlinks.

11. A method according to claim 8 and wherein said visualization functionality comprises:

receiving a list of hyperlinks;

splitting a URL of each hyperlink into URL components including at least a path component and a host component;

trimming a path component based on the consideration of finding the most representative image of a given web page; and

constructing a new URL including a trimmed path component.

12. A method according to claim 1 and wherein said providing a thumbnail visual image comprises:

employing a web browser which interfaces via the Internet with a web server including visualization functionality.

13. A method according to claim 12 and wherein said visualization functionality is operative to embed commands to the web browser to download, via said image server, thumbnail visual images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.

14. A method according to claim 13 and wherein said annotated web page includes the web page having within it thumbnail visual images of homepages of web sites referenced by hyperlinks contained in the web page.

15. A method according to claim 1 and wherein said thumbnail visual image appears hovering over said hyperlink.

16. A method for generating an image server database of thumbnail visual images of web pages, the method comprising:

receiving a list of URLs corresponding to said web pages, the thumbnail visual images of which it is desired to supply to said image server database;

operating a multiplicity of downloaders simultaneously to retrieve from the Internet, web pages and embedded objects corresponding to URLs from said list;

causing a thumbnail generator to render retrieved web pages retrieved simultaneously by said multiplicity of downloaders; and

causing said thumbnail generator to shrink said rendered images of said retrieved web pages and supply them to said image server database.

17. A method according to claim 16 also comprising deleting executable content from said retrieved web pages.

18. A system for presenting Internet information to a user comprising:

first functionality providing to a user a visual image of a web page containing at least one hyperlink; and

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second functionality operative at least partially concurrently with said first functionality for providing a thumbnail visual image of the home page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image server that stores and provides said thumbnail visual image.

19. A system according to claim 18 and wherein said thumbnail visual image is displayed alongside the visual image of said web page.

20. A system according to claim 19 and wherein said thumbnail visual image appears hovering over said hyperlink.

21. A system according to claim 18 and wherein said thumbnail visual image is displayed within the visual image of said web page.

22. A system according to claim 21 and wherein said thumbnail visual image appears hovering over said hyperlink.

23. A system according to claim 18 and wherein a plurality of thumbnail visual images represented by at least one hyperlink are displayed simultaneously along with said visual image of a web page containing at least one hyperlink.

24. A system according to claim 18 and wherein said web page comprises an HTML page.

25. A system according to claim 18 and wherein said second functionality comprises third functionality employing a web browser including visualization functionality which interfaces via the Internet with said image server.

26. A system according to claim 25 and wherein said visualization functionality is operative to download via the image server from an image database images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.

27. A system according to claim 25 and wherein said visualization functionality comprises:

- generation of a list of hyperlinks from a web page;
- elimination of links which refer back to a web server sending said web page;
- determination of whether redirection links are present and if so, providing thumbnail visual images of ultimate destinations thereof; and
- providing thumbnail visual images of remaining hyperlinks.

28. A system according to claim 25 and wherein said visualization functionality comprises:

- receiving a list of hyperlinks;
- splitting a URL of each hyperlink into URL components including at least a path component and a host component;
- trimming a path component based on the consideration of finding the most representative image of a given web page; and
- constructing a new URL including a trimmed path component.

29. A system according to claim 18 and wherein said second functionality comprises fourth functionality employing a web browser which interfaces via the Internet with a web server including visualization functionality.

30. A system according to claim 29 and wherein said visualization functionality is operative to embed commands to the web browser to download, via said image server, thumbnail visual images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.

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31. A system according to claim 30 and wherein said annotated web page includes the web page having within it thumbnail visual images of homepages of web sites referenced by hyperlinks contained in the web page.

32. A system according to claim 18 and wherein said thumbnail visual image appears hovering over said hyperlink.

33. A system for generating an image server database of thumbnail visual images of web pages, the system comprising:

- a multiplicity of downloaders, each receiving at least one URL from a list of URLs corresponding to said web pages, the thumbnail visual images of which it is desired to supply to said image server database, and simultaneously retrieving from the Internet web pages and embedded objects corresponding to said at least one URL; and

at least one thumbnail generator operative to render the web pages, shrink said rendered images of the web pages and supply said rendered images to said image server database.

34. A system according to claim 33 and wherein said multiplicity of downloaders are operative to delete executable content from the web pages.

35. A method for presenting Internet information to a user comprising:

- providing to a user a visual image of a web page containing at least one hyperlink; and at least partially concurrently

providing a thumbnail visual image of another web page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image server that stores and provides said thumbnail visual image,

said providing a thumbnail visual image comprising employing a web browser which interfaces via the Internet with a web server, separated from said image server, including visualization functionality, said visualization functionality being operative to embed commands to the web browser to download, via said image server, thumbnail visual images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.

36. A method according to claim 35 and wherein said thumbnail visual image is displayed alongside the visual image of said web page.

37. A method according to claim 36 and wherein said thumbnail visual image appears hovering over said hyperlink.

38. A method according to claim 35 and wherein said thumbnail visual image is displayed within the visual image of said web page.

39. A method according to claim 38 and wherein said thumbnail visual image appears hovering over said hyperlink.

40. A method according to claim 35 and wherein a plurality of thumbnail visual images represented by at least one hyperlink are displayed simultaneously along with said visual image of a web page containing at least one hyperlink.

41. A method according to claim 35 and wherein said web page comprises an HTML page.

42. A method according to claim 35 and wherein said annotated web page includes the web page having within it thumbnail visual images of homepages of web sites referenced by hyperlinks contained in the web page.

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43. A method according to claim 35 and wherein said visualization functionality comprises:

generation of a list of hyperlinks from a web page;
elimination of links which refer back to a web server
sending said web page;
determination of whether redirection links are present and
if so, providing thumbnail visual images of ultimate
destinations thereof; and
providing thumbnail visual images of remaining hyper-
links.

44. A method according to claim 35 and wherein said visualization functionality comprises:

receiving a list of hyperlinks;
splitting a URL of each hyperlink into URL components
including at least a path component and a host com-
ponent;
trimming a path component based on the consideration of
finding the most representative image of a given web
page; and
constructing a new URL including a trimmed path com-
ponent.

45. A method according to claim 35 and wherein said thumbnail visual image appears hovering over said hyper-
link.

46. A system for presenting Internet information to a user comprising:

first functionality providing to a user a visual image of a
web page containing at least one hyperlink; and
second functionality operative at least partially concu-
rently with said first functionality for providing a
thumbnail visual image of another web page of at least
one web site which is represented by said at least one
hyperlink via the Internet by employing an image
server that stores and provides said thumbnail visual
image, said second functionality comprising third func-
tionality employing a web browser which interfaces via
the Internet with a web server, separated from said
image server, including visualization functionality,
said visualization functionality being operative to embed
commands to the web browser to download, via said
image server, thumbnail visual images of web pages
which represent hyperlinks contained in the web page
and to provide to a user, via the web browser, an
annotated web page.

47. A system according to claim 46 and wherein said thumbnail visual image is displayed alongside the visual
image of said web page.

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48. A system according to claim 47 and wherein said thumbnail visual image appears hovering over said hyper-
link.

49. A system according to claim 46 and wherein said thumbnail visual image is displayed within the visual image
of said web page.

50. A system according to claim 49 and wherein said thumbnail visual image appears hovering over said hyper-
link.

51. A system according to claim 46 and wherein a plurality of thumbnail visual images represented by at least
one hyperlink are displayed simultaneously along with said visual image of a web page containing at least one hyperlink.

52. A system according to claim 46 and wherein said web page comprises an HTML page.

53. A system according to claim 46 and wherein said annotated web page includes the web page having within it
thumbnail visual images of homepages of web sites refer-
enced by hyperlinks contained in the web page.

54. A system according to claim 46 and wherein said visualization functionality comprises:

generation of a list of hyperlinks from a web page;
elimination of links which refer back to a web server
sending said web page;
determination of whether redirection links are present and
if so, providing thumbnail visual images of ultimate
destinations thereof; and
providing thumbnail visual images of remaining hyper-
links.

55. A system according to claim 46 and wherein said visualization functionality comprises:

receiving a list of hyperlinks;
splitting a URL of each hyperlink into URL components
including at least a path component and a host com-
ponent;
trimming a path component based on the consideration of
finding the most representative image of a given web
page; and
constructing a new URL including a trimmed path com-
ponent.

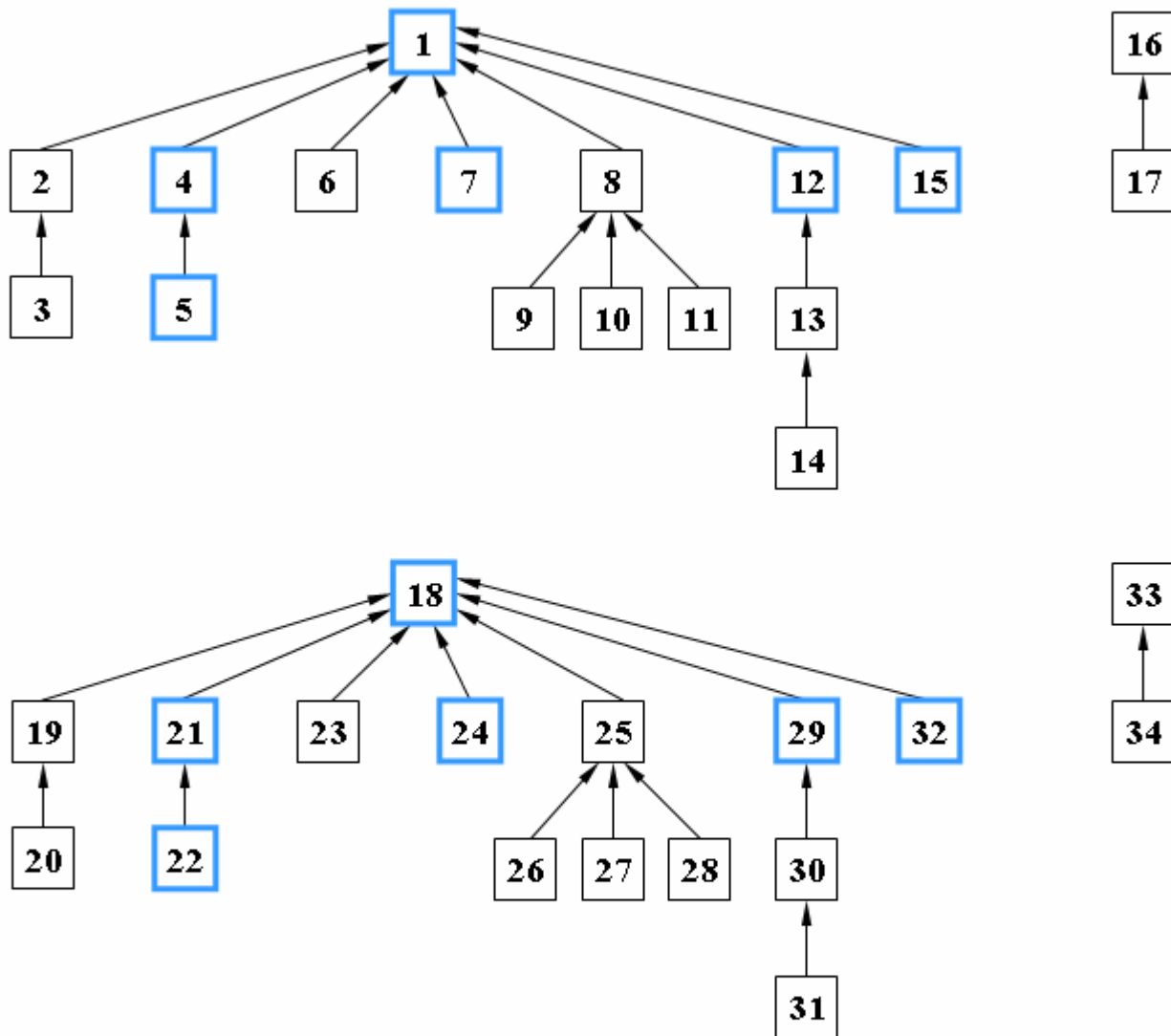
56. A system according to claim 46 and wherein said thumbnail visual image appears hovering over said hyper-
link.

* * * * *

Exhibit 5

Exhibit 5: Claim dependency relationships for Patent 6,864,904

Claim dependency relationships for '904 Patent, Claims 1-34



Claim dependency relationships for '904 Patent, Claims 35-56:

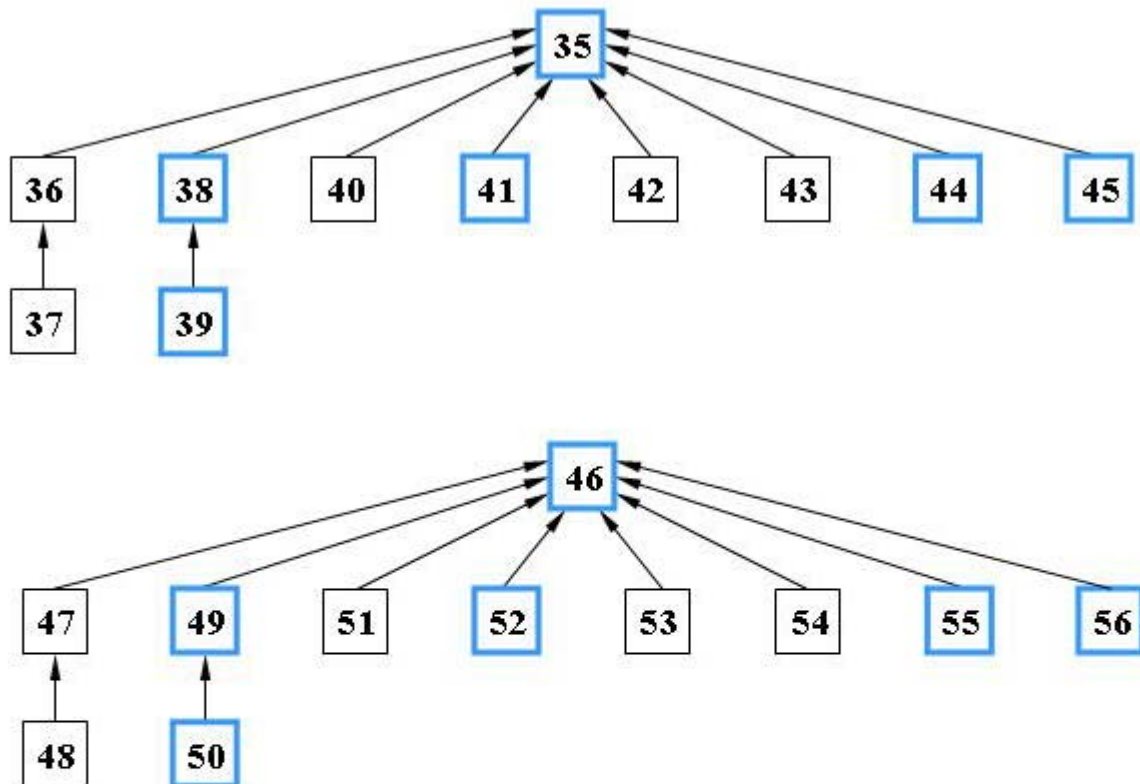


Exhibit 6

Exhibit 6: Example of a Snap Classic search results window

A Snap Classic search using the key phrase “Randy Pausch”, performed at 3:38pm (EST) on Saturday May 10.

The URL returned by Snap Classic containing the search results was:

http://www.snap.com/classicsearch.php?query=randy+pausch&submit_index.x=0&submit_index.y=0

The corresponding resulting screenshot is shown on the following page (note that this Web page finished downloading, but no thumbnails or previews are visible):

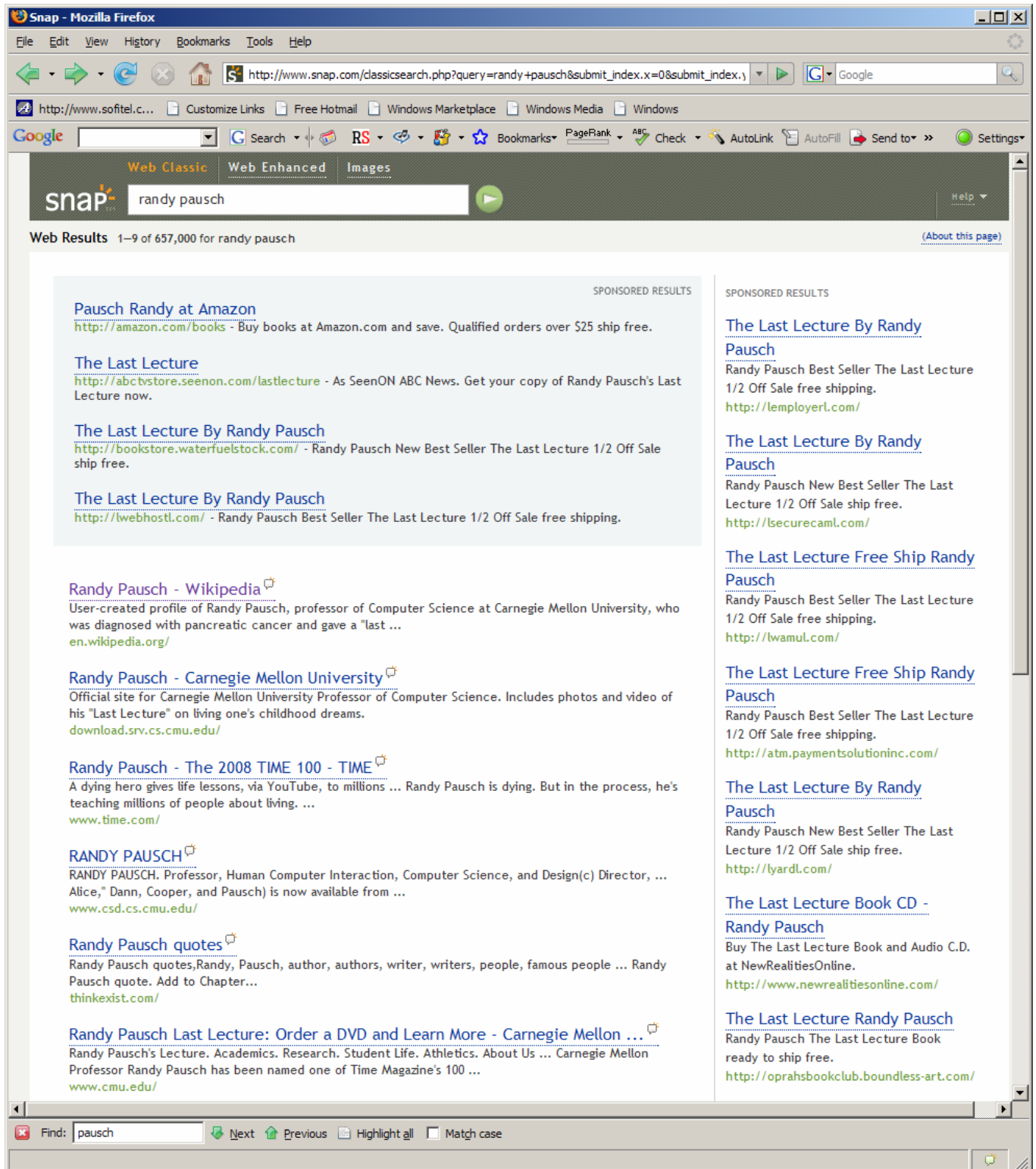


Exhibit 7

Exhibit 7: Example of a Snap Classic search window with provided preview

For the Snap Classic search performed as described in Exhibit 6, i.e., using the key phrase “Randy Pausch” (performed at 3:38pm (EST) on Saturday May 10, 2008).

The URL returned by Snap Classic containing the search results was:

http://www.snap.com/classicsearch.php?query=randy+pausch&submit_index.x=0&submit_index.y=0

At 7:05pm (EST) Saturday May 10, 2008 (more than three hours after the search above was performed), the mouse was moved by the user over the first search results entry (namely, “Randy Pausch – Wikipedia”).

Snap Classic then provided the preview of this entry, as shown in the following screenshot:

Snap - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.snap.com/classicsearch.php?query=randy+pausch&submit_index.x=0&submit_index.y=

Google

http://www.softel.c... Customize Links Free Hotmail Windows Marketplace Windows Media Windows

Google Search RS PageRank Check AutoLink AutoFill Send to Settings

Web Classic Web Enhanced Images

randy pausch

Web Results 1-9 of 657,000 for randy pausch (About this page)

Pausch Randy at Amazon
<http://amazon.com/books> - Buy books at Amazon.com and save. Qualified orders over \$25 ship free.

The Last Lecture
<http://abctvstore.seenon.com/lastlecture> - As SeenON ABC News. Get your copy of Randy Pausch's Last Lecture now.

The Last Lecture By Randy Pausch
<http://bookstore.waterfuelstock.com/> - Randy Pausch New Best Seller The Last Lecture 1/2 Off Sale ship free.

The Last Lecture By Randy Pausch
<http://lwebhostl.com/> - Randy Pausch Best Seller The Last Lecture 1/2 Off Sale free shipping.

SPONSORED RESULTS

The Last Lecture By Randy Pausch
 Randy Pausch Best Seller The Last Lecture 1/2 Off Sale free shipping.
<http://lemmployerl.com/>

The Last Lecture By Randy Pausch
 Randy Pausch New Best Seller The Last Lecture 1/2 Off Sale ship free.
<http://lsecurecaml.com/>

Randy Pausch - Wikipedia
 User-created profile of Randy Pausch, was diagnosed with pancreatic cancer
en.wikipedia.org/

Randy Pausch - Carnegie Mellon
 Official site for Carnegie Mellon University's "Last Lecture" on living one's child
download.srv.cs.cmu.edu/

Randy Pausch - The 2008 TIME
 A dying hero gives life lessons, via YouTube teaching millions of people about living
www.time.com/

RANDY PAUSCH
 RANDY PAUSCH. Professor, Human Computer Interaction, (Dann, Cooper, and Pausch) is named one of Time Magazine's 100 ...
www.csd.cs.cmu.edu/

Randy Pausch quotes
 Randy Pausch quotes, Randy, Pausch, Pausch quote. Add to Chapter...
thinkexist.com/

Randy Pausch Last Lecture: Order a DVD and Learn More - Carnegie Mellon ...
 Randy Pausch's Lecture. Academics. Research. Student Life. Athletics. About Us ... Carnegie Mellon Professor Randy Pausch has been named one of Time Magazine's 100 ...
www.cmu.edu/

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 Welcome to Wikipedia, the free encyclopedia that anyone can edit. 2,368,765 articles in English

Today's featured article
 The flag of Germany is a tricolour consisting of three equal horizontal bands displaying the national colours of Germany: black, red and gold. The black-red-gold tricolour first appeared in the early 18th century and achieved prominence during the 1848 revolution. The short-lived Frankfurt Parliament of 1848-50 proposed the tricolour as a flag for a united and democratic German state. With the formation of the Weimar Republic after World War I, the tricolour was adopted as the national flag of Germany. Following World War II, the tricolour was designated as the flag of both West and East Germany. Both flags were identical until 1959, when socialist symbols were added to the East German flag. Since reunification on 3 October 1990, the black-red-gold tricolour has remained the flag of Germany. The colours of the modern flag are associated with the republican democracy formed after World War II and represent German unity and freedom: not only the freedom of Germany, but also the personal freedom of the German people. (more...)

In the news

- **Stomachache** between supporters of Lebanon's government and the opposition erupt in Beirut.
- **Dmitry Medvedev** (pictured) is sworn in as the third President of Russia, replacing Vladimir Putin, who becomes the Prime Minister.
- **Brian Cowen** succeeds Bertie Ahern as Taoiseach (prime minister) of the Republic of Ireland.
- An international relief operation begins after **Cyclone Nargis** strikes Burma, with at least 63,000 people reported killed or missing.
- **Yahya Ould Ahmed El Waghef** takes office as Prime Minister of Mauritania.
- In Zimbabwe, results of the **presidential election** held in March 2008 are announced with no outright winner, necessitating a run-off between Morgan Tsvangirai and incumbent Robert Mugabe.

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n.paymentsolutioninc.com/

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 Randy Pausch New Best Seller The Last Lecture 1/2 Off Sale ship free.
rdl.com/

The Last Lecture Book CD - Randy Pausch
 Last Lecture Book and Audio C.D. available online.
www.newrealitiesonline.com/

The Last Lecture Randy Pausch
 Randy Pausch The Last Lecture Book ready to ship free.
<http://oprahbookclub.boundless-art.com/>

Find: pausch Next Previous Highlight all Match case

http://www.snap.com/r.php?no_session_event=1&t=_eWUJBTAMTjPdf4X-wb02Kuix16nPRacGjr49xnpQnIddLxEAJEF94tM476C69fMeBkLAzh6TAQbva0BuVj7pJaoMjYqeJcckVEgB-BH7L1...

Exhibit 8

Exhibit 8: Example of a HTML code produced by Snap Classic search

This is a listing of the HTML code produced by Snap Classic in response to a search.

The key phrase used in this search was "Randy Pausch".

The URL returned by Snap Classic was:

http://www.snap.com/classicsearch.php?query=randy+pausch&submit_index.x=0&submit_index.y=0

The verbatim HTML code produced by Snap Classic in response to the search for "Randy Pausch" (see Exhibit 6) is identical to the HTML code of this Web page after a preview was provided (see Exhibit 7).

The following is a verbatim listing of this HTML code:

```
<!-- MSIE BugFix: http://blog.unmatchedstyle.com/hacks/min-width-max-width-re-hacked -->
<!-- <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd"> -->
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Snap</title>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8">
<meta name="description" content="Snap.com - The other way to Search. Snap is a new search
engine that offers a very different alternative to the Big Search, Text-In, Text-Out, method. Snap
is visual. Snap is fast. Snap is Interactive.">
<meta name="keywords" content="search, search engines, Snap, snap.com, Perfect Market,
results, cost per action, visual search, fast browsing, search previews, search alternatives, other
ways to search, idealab search">
<meta name="copyright" content="©; 2006 Perfect Market Technologies, Inc.">
<link rel="stylesheet" href="/styles/classic_palette.css?version=5.23" type="text/css">

<style type="text/css">

html body {
font-family: "trebuchet ms", sans-serif;
font-size: 12px;
color: #333;
background: #f2f3ee;
background-image: url(/images/t.gif) !important;
```

```
margin: 0;
padding: 0;
}
```

```
#body {
padding: 0;
margin: 0;
min-width: 980px;
width: expression(document.body.clientWidth < 980 ? "980px" : "100%");
position: relative;
min-height: 100%;
height: 100%;
voice-family: "\"}\"";
voice-family: inherit;
height: auto; }
```

```
img {
border: 0;
}
```

```
#mainframe {
height: auto;
margin: 0 20px !important;
padding: 0 !important;
text-align: left;
}
```

```
#header {
width: 100%;
height: 65px;
background: #6b7062;
background-repeat: repeat;
background-image: url(http://i.snap.com/images/bg_hybrid.gif);
font-size: 9px;
color: #c9cfba;
letter-spacing: 1px;
padding: 0;
margin: 0; }
```

```
#header #logo {
float: left;
margin: 28px 8px 0 14px;
padding: 0; }
```

```
#header #formdiv {
  float: left;
  width: auto;
  margin:0;
  padding:0; }
```

```
#header form {
  width: auto;
  margin:0 8px 0 2px;
  padding:0; }
```

```
#header form input.searchbox {
  width:328px;
  _width:325px;
  height:30px;
  background: #ffffff;
  margin:0;
  padding:4px 0 0 10px;
  font-family:"trebuchet ms", arial, helvetica, sans-serif;
  color:#333333;
  font-size:14px;
  font-size:20px#;
  font-weight:normal#;
  border:1px solid #999999; }
```

```
#header form input.DYM_auto {
  color:red !important; }
```

```
#header #imageSearch {
  margin: 0;
  padding: 0; }
```

```
#header #imageSearch ul {
  padding: 0;
  margin: 0;
  list-style: none; }
```

```
#header #imageSearch ul li {
  padding:0;
  margin: 0;
  width: auto;
  display: inline; }
```

```
#header #imageSearch ul li.divd {
position: relative;
top: 4px;
padding: 0 5px;
margin: 0;
display: inline; }
```

```
#header #imageSearch ul li a,
#header #imageSearch ul li a:visited {
position: relative;
top: -7px;
font-family: "trebuchet ms", arial, helvetica, sans-serif;
font-size: 12px;
color: #ffffff;
padding: 0;
margin: 0;
text-decoration: none;
font-weight: normal;
border-bottom: 1px dotted #ffffff; }
```

```
#header #imageSearch ul li a:hover,
#header #imageSearch ul li a:active {
border-bottom: 1px dotted #73756b; }
```

```
#header #imageSearch ul li.hot {
position: relative;
top: -7px;
padding: 0;
margin: 0;
font-size: 12px;
font-weight: bold;
color: #fca014;
display: inline; }
```

```
#rightTop {
float: right;
width: auto;
height: auto;
margin: 20px 20px 0 0;
padding: 0; }
```

```
#rightTop ul {
margin: 0; }
```

```
padding: 0;
list-style: none; }
```

```
#rightTop ul li {
margin: 0;
padding: 0;
display: inline; }
```

```
#rightTop ul li a,
#rightTop ul li a:visited {
color: #c9cfba;
margin: 0;
padding: 0;
text-decoration: none;
border-bottom: 1px dotted #c9cfba;
height: 10px; }
```

```
#rightTop ul li a:hover,
#rightTop ul li a:active {
height: 10px;
border: 0; }
```

```
.divider {
position: relative;
top: 18px;
_top: 13px;
right: 10px;
background: transparent url(/images/divider.gif) repeat-y; }
```

```
#content2 {
background: #fff;
font-size: 12px;
margin: 0;
padding: 20px;
position: relative;
}
```

```
#search-col1 {
padding-right: 10px;
}
```

```
#search-col2 {
font-size: 12px;
width: 206px;
```

```
border-left: 1px solid #ccc;
padding: 10px;
vertical-align: top;
}
```

```
a {
color: #039;
text-decoration: none;
border-bottom: 1px dotted;
}
```

```
a:visited {
color: #639;
}
```

```
a:active {
color: #900;
}
```

```
#lheader {
height: 30px;
_height: 34px; }
```

```
#lheader h2 {
color: #333;
font-size: 11px;
padding: 0;
margin: 7px 0 0 0;
font-weight: normal;
}
```

```
#lheader a {
font-size: 10px;
}
```

```
#results_location {
float: left;
}
```

```
#results2 {
}
```

```
ol#results2 {
margin: 0 !important;
padding: 0;
```



```
font-size: 12px !important;  
}
```

```
#results2 li {  
margin: 15px;  
margin-top: 0;  
line-height: 16px !important;  
}
```

```
.result {  
margin: 15px;  
margin-top: 0;  
line-height: 16px !important;  
font-size: 12px !important;  
}
```

```
h3 {  
font-size: 16px;  
line-height: 1.4em;  
font-weight: normal;  
margin: 0;  
}
```

```
h3 a {  
font-size: 16px;  
}
```

```
h5 {  
text-transform: uppercase;  
font-size: 10px;  
color: #777;  
margin: 0;  
}
```

```
.result_description {  
margin: 0;  
}
```

```
.result_url {  
color: #693;  
}
```

```
.sponsored-results {  
padding: 5px 20px;  
margin-bottom: 30px;  
background: #f1f5f6 url(/images/sponsored.gif) no-repeat top right;
```

```
font-size: 12px;  
line-height: 14px;  
}
```

```
.sponsored-results p {  
margin: 15px 0;  
}
```

```
.sponsored {  
color: #d70;  
}
```

```
a.cached {  
color:#858263;  
text-decoration:none;  
}
```

```
.cached {  
color:#858263;  
}
```

```
#answers {  
margin: 30px 10px;  
font-size: 12px;  
line-height: 16px;  
}
```

```
.noborder {  
border: 0;  
}
```

```
.answers {  
margin: 0 25px;  
}
```

```
p#pagination {  
margin: 0;  
margin-top: 30px;  
text-align: center;  
font-size: 14px;  
white-space: nowrap;  
}
```

```
#pagination a {  
margin: 5px;  
}
```

```
#pagination b {
margin: 5px;
}
```

```
#pagination a.prev {
margin-right: 5px;
}
```

```
#pagination a.next {
margin-left: 5px;
}
```

```
a.image {
border: 0;
margin: 0 !important;
}
```

```
/* Footer
----- */
```

```
#footer {
position: relative;
bottom:0;
font-size:10px !important;
height:26px;
background: #d9ddce;
margin: 5px 0 0 0;
padding: 0 10px 0 20px;
}
```

```
#footer ul.line {
float: left;
width: auto;
margin: 0 15px 0 0;
padding: 0;
list-style-type: none;
border-right: 1px solid #b9bcb1; }
```

```
#footer ul {
float:left;
width:auto;
margin:0;
padding: 6px 0 7px 0 !important;
list-style-type: none; }
```

```
#footer li {
display: inline;
margin:0;
padding:0 10px 0 0; }
```

```
#footer li a,
#footer li a:visited {
font-size:10px !important;
font-weight:normal;
color:#626262 !important;
text-decoration:none;
border-bottom: 1px dotted #999999 !important; }
```

```
#footer li a:hover,
#footer li a:active {
border-bottom: 1px dotted #d9ddce !important; }
```

```
#footer #logos {
float: right;
width: auto;
display: inline;
padding: 0 35px 0 0;
_padding:0 10px 0 0;
margin: 6px 0 0 20px; }
```

```
#footer #logos a {
border-bottom: 0 !important; }
```

```
/* Help Menu
----- */
```

```
#Menu-Help {
position:absolute; top: 53px; right:35px;
visibility: hidden;
z-index: 500;
background-color:#fafcc2;
font-size: 12px;
color:#333333;
width: 230px;
margin:0;
padding: 4px 15px 15px 15px;
```

```
border:1px solid #666633;
cursor: pointer; }
```

```
#Menu-Help a,
#Menu-Help a:visited {
  font-size:12px !important;
  color:#666633 !important;
  font-weight:bold;
  text-decoration:none;
  border-bottom: 1px dotted #999999 !important;
  padding:0;
  margin:0; }
```

```
#Menu-Help a:hover,
#Menu-Help a:active {
  border-bottom: none !important; }
```

```
#Menu-Help ul {
  width: auto;
  padding: 0;
  margin: 0;
  list-style: none; }
```

```
#Menu-Help ul li {
  padding: 0;
  margin: 0;
  line-height: 1.7em; }
```

```
.line {
  border-bottom: 1px solid #bcbc77;
  margin: 15px 0 10px 0;
  _margin: 0 0 10px 0; }
```

```
#Help-close {
  text-align: right;
  width:auto;
  height:15px;
  padding:0;
  margin: 5px -3px 0 0;
  _margin: 0 -3px 0 0;
  display: block; }
```

```
#Help-close a,
#Help-close a:visited,
#Help-close a:hover,
#Help-close a:active {
```

```
text-decoration:none;
border-bottom: none !important; }
```

```
/* NO RESULTS */
```

```
#no {
padding:0;
margin:70px; }
```

```
#no h1 {
font-size:14px;
font-weight: normal;
color:#333333;
padding:0;
margin:0 0 22px 0; }
```

```
#no p {
font-size:12px;
color:#666666;
padding:0;
margin:0 0 0 10px; }
```

```
#no ul {
padding:0;
margin:0; }
```

```
#no li {
font-size:12px;
color:#666666;
padding:0;
margin:0 0 0 23px;
margin:0 0 0 26px; }
```

```
</style>
</head>
```

```
<body style="text-align: center;">
<div id="body">
<div id="mainframe">
```

```
<!-- header -->
<div id="header">
<div id="logo">
<a style="border:0;" href="/"></a>
```

```

</div>

<div id="formdiv">
<form id="search_form" action="">
<input type="hidden" name="pid" value="53f928049a5ebc1ea68d90519ac41260">
<div id="imageSearch">
<ul>
<li id="headerChoiceWebC" class="hot">Web Classic</li>
<li class="divd"></li>
<li id="headerChoiceWeb"><a href="/search.php?query=randy+pausch">Web
Enhanced</a></li>
<li class="divd"></li>
<li id="headerChoiceImages"><a
href="/isearch/search.php?query=randy+pausch">Images</a></li>
</ul>
</div>

<table cellpadding="0" cellspacing="0">
<tr>
<td><input type="text" name="query" class="searchbox" id="search_text"
value="randy pausch" autocomplete="off" /></td>
<td style="padding-left: 5px;"><input type="image"
class="IMAGE_c_btn_search" name="submit_index" id="submit_index"
src="http://i.snap.com/images/t.gif" alt="Submit your search" title="Submit your search"
width="29" height="29" /></td>
</tr>
</table>
</form>
</div>

<div id="rightTop">
<ul onclick="document.getElementById('Menu-Help').style.visibility='visible';">
<li class="divider"></li>
<li id="help"><a href="javascript:void(0)" title="Help">Help</a></li>
<li id="help_arrw" class="arrw"><a style="border: 0 !important;"
href="javascript:void(0)" title="Help"></a></li>
</ul>
</div>

</div>
<!-- header placeholder -->

```



```

<!-- HELP DROP DOWN -->
<div id="Menu-Help">
    <div id="Help-close">
        <a href="javascript:void(0)" onclick="document.getElementById('Menu-
Help').style.visibility='hidden';"></a>
    </div>
    <div>
        <ul>
            <li><a href="/about/feedbk.php">Send Feedback to Snap</a></li>
            <li><a href="/about/tips.php">Snap's Tips & Tricks</a></li>
            <li><a href="/about/why.php">Why Snap is Better</a></li>
            <li><a href="/about/downloads.php">Downloads</a></li>
            <li><div class="line"></div></li>
            <li><a href="/about/privacy.php">Privacy</a></li>
            <li><a href="/about/terms.php">Terms</a></li>
        </ul>
    </div>
</div>
<!-- END HELP DROP DOWN -->

```

```

<div id="lheader">
<div id="results_location">
<h2>
<b style="color:#000; font-size:13px;">Web Results</b>
    &nbsp;
<b>1—9</b>
of
<b>654,000</b>
for
<b>randy pausch</b>
</h2>
</div>
<div style="float:right; margin:7px;">
<a href="about/aboutthispage.php">(About this page)</a>
</div>
</div>

```

```

<div id="content2">

```

```

<table>
<tr><td id="search-coll">

```

<!-- Sponsored Results -->
 <div class="sponsored-results">

<p>
 <h3 class="result_title"><a
 href="http://www.snap.com/r.php?no_session_event=1&t=_p9kcpG8XaiPYhO84uSuuAeXNN.
 L0mKBGUi0ftsf-GbBKg2gQcqAVQhWiX8oqFOyWh9Bna93mDlz6QF2Xm-
 fuX5aa5hVOnK61XOsDUPyPW8DcRW6O91XD8StaD.be0f8UxlZZBDSIcBVGI9v27kMJvaS-
 HJNsArEbvYWgozcPEQmC9gcsWp8-
 aLBXlm5Z0eiIoXabhyASAwVwtbDH3saD0cBKXnejfkRF3IkEy-
 inbhvSAqsmJ.54XP9kZmUywSfWBU-b2uvDkrixNDlBOszW9m-luVt3g6zM-
 eT.AE9XpjmE3B-
 K9IC76W70gAcQokjKpfX09ZkckIKNq2t31HAMzGWCfsw5WXS7YD86WHq7Tiz5YU9ISG
 WTuxxcK459xiSq-daf1VTNm1ayhklaY6aspb1gngW5dl.AUWe6v7stENcBJ2V-
 z.uf3rMTfTdGYYSXNgyiBtPN4kOtYSpjpogMsL57x.-
 1u0Rt4Fef2zYWdKeWfK1LcSNVblG66fVK50zVcNKm4qc2ddYNBHhwPTE2DoNdaRkWUA
 SuLIW7ZuJWv5OPcu5dXMxA3TxxhvvYMg-G.frFvJaLPiu2AG-
 BpXyXyRRMtlfcn2XH4xTjlBpSQxeCsx7rN3Xk-
 0hHnAkDe.dN33gikFhzmLXgpfGdndTaizNpL5fhISGMuLwzL6gz4IhkpgvhvTHLHLsNj">Paus
 ch Randy at Amazon</h3>
 http://amazon.com/books - Buy books at Amazon.com and
 save. Qualified orders over \$25 ship free.</p>
 <p>
 <h3 class="result_title"><a
 href="http://www.snap.com/r.php?no_session_event=1&t=_cY1Xp8rlgFOQQesDdwHrWWWhN
 5GR4LYum5LN1a9U0ZWxK9CzUqFs1CUT0ZzHwEoF7AvuEpQndcDzwbRHYgch-
 OMMdgx1vVdkCa-
 gIv3Nqw0x2k4ARZ8WUNH.2L4z38c1OtbGap2yzgRFZLSdqcQQsFyMFHERBbNNw1bUJkIn
 w8MQHXsXb88mM61u6-OvIg9gnvwr7RZb-vLiZAQ.8d8DLelxQqLkvQAzAGnVtJLTJ-
 249uVfrTP3wyN-BA.MT6.ABwrBADumovfHAsSDGb1D5L-
 4XV9vYJT6PQJ60HIHg5ciQxp1-
 AXbEPZwzYUyVaQBWxbPQRE1ywklrl9pRmVbU3tESvBs.-
 9ix.8i4dTcd.lAoglRgHM8HkSzwgABgsEkNQZDO47fpniYRgQMgS5cCgQ6kkAkIIBByZb1lm
 s-Ptgsb.NqZ2.HALo8yPhwpPoW-VoQOQZaF4NhBINGX7HIJB13OnI.uVn8wikcgupErLJH8-
 ag7tbAgXoazFIwLdaLfpKi0WSs0E6h4aoOknTJ6cOdiYUmUuss462J-
 SpEmmq6X1o7su.Cv2fljZXvBhFJHqsafY9Wf36GN-
 4qcIaCADQBxwPqIkoeNmIVil4HYqMSCGGKBVKsPzve6kxgb0jqXjxYbVyPQRF5Iu71Uwq
 suOo9LNy45VQGo4qrmnFJtHix5ZOUaHE2joXijuh5">The Last Lecture By Randy
 Pausch</h3>
 http://dvd.waterfuelstock.com/ - Randy Pausch New Best
 Seller The Last Lecture 1/2 Off Sale ship free.</p>
 <p>

<h3 class="result_title">The Last Lecture Free Ship Randy Pausch</h3>

http://atm.paymentsolutioninc.com/ - Randy Pausch Best Seller The Last Lecture 1/2 Off Sale free shipping.</p>

<p>

<h3 class="result_title">The Last Lecture Randy Pausch</h3>

http://hotnewreleases.boundless-art.com/ - Randy Pausch The Last Lecture Book ready to ship free.</p>

</div>

<!-- Search Results -->

<!-- Results List -->

<div id="results2" start="">

<div class="result"><h3 class="result_title"><a class="snap_shots" href="http://www.snap.com/r.php?no_session_event=1&t=_OVWj-aZ7DazxsaKSZORbbBrsIsadKCYiQnQjgYRROThMD60P4aN7YBN3EvxssFW.5BpxwxxtAC

eXECrHU1UiFtF.2yc.GYdKVYjrxJOEUk4Vvf9RRLG03xXzr75yVqPW2rNHhF3Y8P2vcNbRtL-mRyKUd8CdW1qiDpbaZ5-S-nBYOpEvgfsbUOg36hlhCHHEIeqRDbBWXYsGZyLWiyJkX2sMPE3EnzISU8Y41vFPGiAwNkKgIVTSTFeuf3irTf6M4TqTAsxr846PFrmEE3ltWg1H3qG9y98O.W5A4bfb2EAOvD91NZN85ozIWONVArpsWI8k-COmLUzpJqwn.A57e.BVZTIQ2TJoHGmLFMUjvr1zzHeRCiUK8Ajs59ocW30u6L2kT7VQEJ4.PmmndSudcIN7gsP6LFaBJnbNnwUtm64uq-vo5qz8hSJEX7.1xUuZUamnILyFXNc5Yfw0ZavLJjNDcTyCDyK5jmJX-Gfsl8Qd0coHXDkJmzX8v7yIjG.qDP6U84wGS1r.jeGCV0BSObYLrhARdW7ywrSyZMiGDKHM1pD5jBKem4B90USRH-.yNpN9.&du=http%3A%2F%2Fen.wikipedia.org%2F">Randy Pausch - Wikipedia</h3><p class="result_description">User-created profile of Randy Pausch, professor of Computer Science at Carnegie Mellon University, who was diagnosed with pancreatic cancer and gave a "last ...</p>en.wikipedia.org/</div>

<div class="result"><h3 class="result_title">Randy Pausch - Carnegie Mellon University</h3><p class="result_description">Official site for Carnegie Mellon University Professor of Computer Science. Includes photos and video of his "Last Lecture" on living one's childhood dreams.</p>download.srv.cs.cmu.edu/</div>

<div class="result"><h3 class="result_title"><a class="snap_shots" href="http://www.snap.com/r.php?no_session_event=1&t=_Ae.DK2KspVfyPMaZpy-.eSGoJEys8vuLYNv751cVO72WxM96iox199c5ZJoG0c-xTGoosoFrwohnW-4IEa6g8oRr6eIEeYInzdF.5DaYnEK-qqdUgftx3sWXuCFcUuUZQf3di032sx4LLCS0WONfAST--40bDEv8m6N-

cNLowdzX7eqyrTLAqCyZv7Z2dy4MZKRZsanGeVayB7hg4Q34ik7Qf82dt1rvkj6v10Qv8iXFR
Qsb00AnqM6xqHjqL9B1up6p5kej2v5cxNhX69JLep2C2b-fDCBppZtniiJOs93mjJ34iO-
DEUOZKosyiBc3fnsHLKqdHgTNA7FPiCjUKqacP6tz7jUtAIw8thqVxpYFdZFCPzo9kkgkjWu
h7bxWFY07zpYJVMgNnePGI7FE2uJEa95soLFj2wTXsMBE7.qz2EQdSw7roq-
6QDJwcWnXX-

Ux3EolyE2zOkzayOLge0PFB4sT9LMdHtQ7qcX.6mFs5IrvHeQPIhgqpMhi2Cqui4MBJr1RfdD
9YHyBuRQNmn0Nyr4lQrIbzBw2AlXv6kRv4M0MGY3cMgsd7dt0aeHiZi9ao1p5nMkA8p7xH
NcmBJwQ20BQ3s87k3zDeFv6toJxyZSbHMMRkKirWM4vF4RD&du=http%3A%2F%2Fwww
.time.com%2F">Randy Pausch - The 2008 TIME 100 - TIME</h3>

<p class="result_description">

A dying hero gives life lessons, via YouTube, to millions ... Randy Pausch is dying. But in the
process, he's teaching millions of people about living. ...</p>

www.time.com/

</div>

<div class="result"><h3 class="result_title"><a class="snap_shots"
href="http://www.snap.com/r.php?no_session_event=1&t=_O-
V3R0uGm5DZu6AJuAbiQIzk2G4ezQACtc-
ba8qtS3ibQdADG7hxFuQQzVvJCwwTgSfOE4G0-
cHOoF10VhWsl4JYzkf1XD0dANNvdWXplltqwjrUYIt38TWlmCT6MoLMttYaBH4NEc2tvky
v4Dj-
R1K1eTtUpIILngVL1xSHgzbr5IaheIpT.uX3DVi5NnbARLMD7AZJaje31eS7Oxl4dEiqhC0-
K0F1PIXKpCd-Jvhjx-g95EJ.wP3lVSST1OqBy1DjI9sb7j.1PjRjiGwC9v107hZ-
.HGP8dxBHTKcq9A-0e6NzGath1xEMCZeiO-UpWzG6e4cUgP21OONg2uQ1K-
XUE72vnrSx5z2yYo3a9lNfQL2pK1cP4Dbcp4c0X4qlOYxq5vV4sdQyYmVz8KHQ00AP1gj8l
7NagP49c6Eroqj2uy38vKAo4dWds3exm6Z.WukE.A-h6DUxV2fbwQ7y1fd-
JA0KQcCODqm7Rge-
xSBOB6P51ht1fjnOT9QUICgLRLsjECZnje3njXh2lR0b27gNAYyCI4SJf1YSRqw9Oshtao9yf9
WIymKRF49uPB67EzPEZUddHmH7RR&du=http%3A%2F%2Fwww.csd.cs.cmu.edu%2F">R
ANDY PAUSCH</h3>

<p class="result_description">

RANDY PAUSCH. Professor, Human Computer Interaction, Computer Science, and Design(c)
Director, ... Alice," Dann, Cooper, and Pausch) is now available from ...</p>

www.csd.cs.cmu.edu/

</div>

<div class="result"><h3 class="result_title"><a class="snap_shots"
href="http://www.snap.com/r.php?no_session_event=1&t=_Y1Z7d0RgTq5oLGDGP-WlHp-
5wpqacAroa8-
YPX4VFr4UCWOkjDqLEfJbbAMo0JaOf.x4s7COO2ONsWYEkeGmC8exprGW-
K4FecioEUiH7ZxwJrkJ1SzNdHCxO7n4tUISF9GA.iSiaDwGVcDvmBdekjrp-
z54nHqg6oNR6VWvbhPGRjHBFaJbG..5R0TI-Z-

qq7nVWFr5IxzMDVTCCJfxASHA4e.oKV.2f2xUF5W.HiTis6nebtgBBnj1FQCCG.Gwwc4iNkI
 .barm5XbMF6SGsA7upWuxPF8XUxSF5gq5aocWfNQ4Qqb51MI9i8mP8Vk.sliYzVdxvLhhZZ
 xOhSGA7WxdIJ9poPpT9f6tWRTpeDpoFUJJEPZ-
 OjKzqYoR.jYYQrEBzgKQVigcb2DLf7cVkhQDI0kvFBofFhD8Q51Zl3-
 LlmDoyQ65u..3iOaniTppnWSQq6.mR-LL-1y9Y6k4CurHjU05utHt3dR9Sru6c0A-
 a.XFRSRIPPICFgF1SsY88eTiD5FVUK1lwkogDE1-
 SJ1M92Ufwox6tcF6qSf8SvoF8ut8yyrXwDI-
 KIZDdJmMjA3.Q&du=http%3A%2F%2Fthinkexist.com%2F">Randy Pausch quotes</h3>
 <p class="result_description">
 Randy Pausch quotes,Randy, Pausch, author, authors, writer, writers, people, famous people ...
 Randy Pausch quote. Add to Chapter...</p>
 thinkexist.com/
 </div>

<div class="result"><h3 class="result_title"><a class="snap_shots"
 href="http://www.snap.com/r.php?no_session_event=1&t=_m3MfMtB5evvH6xxdNAjv-
 xdeGNWlbBRIFZaY0xFJNDEAOB0M4p-
 siOEOaKBT4axnid68RFCRuVD.Esja5meMk0X9iuhAd6zBt3EZsaqpa8eM0aNoNuh3JzrEICV
 NdD.4ZmnJstG47TgZ.H4EtBfne.qfAA9s4btf7resoXkK77VibR-RFRS0tdY5fsT.XKMXNNe-
 xq5nWf-a-
 D2CaQqHh5ySkbBOv8gK3Ulr55jNr9LctzgUBU6mkTBY6Pkd96DO5BZsPF2fqeLd5GxdlCXv
 OwP1DL2NVjXUwhXhf5yD5FnHhBwvqYkbFOhO6F6Hv-cBPC98-
 RIcDgqD9CVno3ChOkoY.5kd3lIZzT.zwX-
 zCr7.zaUuQ31JEe6XkFZ9pipqlaosclfoYukNkYNVEjNEZJxiXh3CyDI5mb0u4LGoFzV9LmcN
 nrNth9w296Gw1O-
 cqZy34uY5sLyPZVSwO1yog7b6xgvEuX8khjc8TG1prOIkrMGBQmXAkA8Ugp2UB6L.3Z2I4
 suzrYy.J8-
 ViKhiTrrY6ACkSpy7iUGi6N5lOmSvphh2zb5f0qTE&du=http%3A%2F%2Fwww.cmu.edu%2F
 ">Randy Pausch Last Lecture: Order a DVD and Learn More - Carnegie Mellon ...</h3>
 <p class="result_description">
 Randy Pausch's Lecture. Academics. Research. Student Life. Athletics. About Us ... Carnegie
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 Computer Science Professor Randy Pausch, who has been diagnosed with terminal pancreatic
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Randy Pausch is only forty-six years old and he's dying of pancreatic cancer. ... Some lessons
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litsoup.blogspot.com/
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<div id="answers">

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through Christmas at least to spend with his wife his kids...</h3>
....."was told in August 2007 to expect a remaining three to six months of good health."

That's a quote right from Wikipedia.

I'm sorry that he's got cancer.....but please.....don't believe 85% of the details that are in
Wikipedia.....not on ANY subject. Just because Wikipedia said it does NOT make it true.

Best Answer - Chosen by
Users

More Answers -
Ask A Question
</div>

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<!-- Sponsored Results -->

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 HH">The Last Lecture By Randy Pausch</h3>
 http://lyardl.com/ - Randy Pausch New Best Seller The Last
 Lecture 1/2 Off Sale ship free.</p>
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 http://lwebhostl.com/ - Randy Pausch Best Seller The Last
 Lecture 1/2 Off Sale free shipping.</p>
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5
 Next
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<h5>Sponsored Results</h5>

<p>
 <h3 class="result_title">The Last Lecture By Randy Pausch</h3>

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<h3 class="result_title">The Last Lecture Book CD - Randy Pausch</h3>

Buy The Last Lecture Book and Audio C.D. at NewRealitiesOnline.

http://www.newrealitiesonline.com/

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http://lwamul.com/

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Exhibit 9

Exhibit 9: Example of a Web page with the Snap Browser Add-On tool enabled

This is an image of a Web page from the Internet Movie Database Web site, specifically of the movie ‘The Godfather’, with the Snap Browser Add-On enabled.

The URL of this Web page is:

<http://www.imdb.com/title/tt0068646/>

The following is a screenshot of this Web page, taken at 9:23pm (EST) Saturday May 10, 2008:

The Godfather (1972) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

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IMDb > The Godfather (1972)

The Godfather (1972)

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Register or login to rate this title

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User Rating: 9.2/10 (278,740 votes)
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main details

Top Links
- trailers and videos
- full cast and crew
- trivia
- official sites
- memorable quotes

Overview
main details
- combined details
- full cast and crew
- company credits
- tv schedule

Awards & Reviews
- user comments
- external reviews
- newsgroup reviews
- awards
- user ratings
- parents guide
- recommendations
- message board

Plot & Quotes
- plot summary
- plot synopsis
- plot keywords
- Amazon.com summary
- memorable quotes

Fun Stuff
- trivia
- goofs
- soundtrack listing

Director: Francis Ford Coppola

Writers: Mario Puzo (novel) Mario Puzo (screenplay) more

Release Date: 24 March 1972 (USA) more view trailer

Genre: Drama | Thriller more

Plot: The aging patriarch of an organized crime dynasty transfers control of his clandestine empire to his reluctant son. full summary | full synopsis (warning! may contain spoilers)

Plot Keywords: Shot In The Throat | Bar | Profanity | Sidewalk | Son more

Awards: Won 3 Oscars. Another 19 wins & 17 nominations more

User Comments: Magnificent portrait of organized crime more

Cast (Cast overview, first billed only)

	Marlon Brando	...	Don Vito Corleone
	Al Pacino	...	Michael Corleone
	James Caan	...	Santino 'Sonny' Corleone
	Richard S. Castellano	...	Peter Clemenza (as Richard Castellano)
	Robert Duvall	...	Tom Hagen

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Exhibit 10

Exhibit 10: Example of a Web page with preview provided by Snap Browser Add-On

This is an image of a Web page from the Internet Movie Database Web site, specifically of the movie ‘The Godfather’, with the Snap Browser Add-On enabled.

The URL of this Web page is:

<http://www.imdb.com/title/tt0068646/>

The same screenshot without the provided preview was shown in Exhibit 9.

At 11:32pm (EST) Saturday, May 10, 2008 (more than two hours after the Web page above without the preview was downloaded), I moved the mouse over the name of the lead actor ‘Marlon Brando’.

The Snap Browser Add-On tool then provided the preview of this entry, corresponding to the biography and other information about Marlon Brando, as shown in the following screenshot.

Note that the ‘send/receive icon’ icon is animated and the ‘download progress indicator bar’ is active, indicating that the preview is being provided at that moment; i.e., this screenshot was taken right when the preview was being downloaded, more than two hours after the Web page itself was downloaded.

The Godfather (1972) - Mozilla Firefox

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The Godfather (1972)

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Quicklinks
main details

Top Links
- trailers and videos
- full cast and crew
- trivia
- official sites
- memorable quotes

Overview
main details
- combined details
- full cast and crew
- company credits
- tv schedule

Awards & Reviews
- user comments
- external reviews
- newsgroup reviews
- awards
- user ratings
- parents guide
- recommendations
- message board

Plot & Quotes
- plot summary
- plot synopsis
- plot keywords
- Amazon.com summary
- memorable quotes

Fun Stuff
- trivia
- goofs
- soundtrack listing

Overview
Director: [Francis Ford Coppola](#)
Writers: [Mario Puzo](#) (novel) [Mario Puzo](#) (screenplay) more
Release Date: 24 March 1972 (USA)
Genre: [Drama](#) | [Thriller](#) more
Plot: The aging patriarch of a criminal empire reluctantly passes the reins to his reluctant son. full summary
Plot Keywords: [Shot In The Throat](#) | [Crime](#)
Awards: Won 3 Oscars. Another 26 wins & 21 nominations (more)
User Comments: Magnificent portrait of a man

Cast (Cast overview, first billed only)

	Marlon Brando	...	Don Vito Corleone
	Al Pacino	...	Michael Corleone
	James Caan	...	Santino 'Sonny' Corleone
	Richard S. Castellano	...	Peter Clemenza (as Richard Castellano)
	Robert Duvall	...	Tom Hagen

Marlon Brando

Recent Films
[Superman II](#) (2006) (V)
[The Godfather](#) (2006) (VG) (voice) (also archive footage)
[The Score](#) (2001)
[Free Money](#) (1998)
[The Brave](#) (1997)

Biography
 Marlon Brando is widely considered the greatest movie actor of all time... (more)

Date of Birth
 3 April 1924, Omaha, Nebraska, USAmore

Trivia
 His performance as Terry Malloy in [On the Waterfront](#) (1954) is ranked #2 on Premiere... (more)

Awards
 Won 2 Oscars. Another 26 wins & 21 nominations (more)

[Marlon](#) [Superman](#) [William Shakespeare](#)
[Godfather](#) [Superman Returns](#) [Marlon Brando](#)

SPONSORED
 Get Free Shots 

http://www.imdb.com/name/nm0000008/

Exhibit 11

Exhibit 11: Example of a HTML code produced by Snap Browser Add-On tool

This is a listing of the HTML code produced by Snap Browser Add-On when examining the Internet Movie Database entry for the movie "The Godfather".

The URL of this Web page is:

<http://www.imdb.com/title/tt0068646/>

The verbatim HTML code produced by Snap Browser Add-On tool for this Web page (see Exhibit 9) is identical to the HTML code of this Web page after a preview was provided (see Exhibit 10).

The following is a verbatim listing of this HTML code:

```
<html>
<head>
<meta http-equiv="content-type" content="text/html; charset=iso-8859-1">
<title>The Godfather (1972)</title>
<meta name="title" content="The Godfather (1972)">
<meta name="description" content="Directed by Francis Ford Coppola. With Marlon Brando,
Al Pacino, James Caan. The aging patriarch of an organized crime dynasty transfers control of
his clandestine empire to his reluctant son. Visit IMDb for Photos, Showtimes, Cast, Crew,
Reviews, Plot Summary, Comments, Discussions, Taglines, Trailers, Posters, Fan Sites">

<meta name="keywords" content="Reviews, Showtimes, DVDs, Photos, Message Boards, User
Ratings, Synopsis, Trailers, Credits">
<link rel="stylesheet" type="text/css" media="screen" href="http://i.media-
imdb.com/images/SF01c175f07a3ed070f8f38d7f98c6ca3f/css2/consumersite.css" />
<link rel="icon" href="http://i.imdb.com/favicon.ico" />
<link rel="apple-touch-icon" href="http://i.media-imdb.com/apple-touch-icon.png" />
<style type="text/css">.showtimes { font-family: Arial, Helvetica, sans-serif }.showtimes
.heading { font-size: 16px; font-weight: bold }.showtimes .time { color: #ff0000 }.tabular {
border-collapse: collapse; border: 1px solid #9999ff }.tabular td.heading { background: #bbbbff
}.tabular td.heading-right { background: #bbbbff; text-align: right; font-size: small }.tabular
td.address { font-size: small; color: #666666; background: #eeeeee }.tabular td.detail { font-size:
small; background: #eeeeee }.tabular tr.alternate { background: #eeeeee }.tabular td.item {
border: 1px solid #9999ff }</style><link rel="stylesheet" type="text/css" href="http://i.media-
imdb.com/images/SFac40a8f6a3092dc579bcadf81e701bcf/tn15/tn15.css" />
```

```

</head>
<!-- h=iop604 i=2008-05-11 s=legacy(default) t='Sun May 11 20:53:58 2008' -->

<body bgcolor="#ffffff" text="#000000">
<div id="wrapper">

    <!-- sid : 78193 : TOP_BANNER -->
<div align="center">

<SCRIPT language="JavaScript">
var rnd = Math.round(Math.random()*10000000);
document.writeln('<IFRAME
src="http://media.adrevolver.com/adrevolver/banner?place=17319&cpy='+rnd+'" width=728
height=90 scrolling=no allowtransparency=true frameborder=0 marginheight=0
marginwidth=0></IFRAME>');
</SCRIPT>

</div>

<div id="root">
<layer name="root">

<div id="nb15">

    <div id="nb15home">
        <a href="/" onClick="(new Image()).src='/rg/nav-home/navbar/images/b.gif?link=/';"></a>
    </div>
    <div id="nb15botbg">

    <div id="nb15tabs">
        <a id="nb15nowplaying" href="/nowplaying/" onClick="(new Image()).src='/rg/nav-
nowplaying/navbar/images/b.gif?link=/nowplaying/';"><i>Now Playing</i></a>
        <a id="nb15news" href="/news/" onClick="(new Image()).src='/rg/nav-
news/navbar/images/b.gif?link=/news/';"><i>Movie/TV News</i></a>
        <a id="nb15mm" href="/mymovies/list" onClick="(new Image()).src='/rg/nav-
mymovies/navbar/images/b.gif?link=/mymovies/list';"><i>My Movies</i></a>
        <a id="nb15dvd" href="/sections/dvd/" onClick="(new Image()).src='/rg/nav-
video/navbar/images/b.gif?link=/sections/dvd/';"><i>DVD New Releases</i></a>
        <a id="nb15imdbtv" href="/sections/tv/" onClick="(new Image()).src='/rg/nav-
imdbtv/navbar/images/b.gif?link=/sections/tv/';"><i>IMDbTV</i></a>

```

```

<a id="nb15boards" href="/boards/" onClick="(new Image()).src='/rg/nav-boards/navbar/images/b.gif?link=/boards/';"><i>Message Boards</i></a>
<a id="nb15showtimes" href="/showtimes/" onClick="(new Image()).src='/rg/nav-showtimes/navbar/images/b.gif?link=/showtimes/';"><i>Showtimes & Tickets</i></a>
<a id="nb15pro" href="http://pro.imdb.com/r/imdb-nav/" onClick="(new Image()).src='/rg/nav-pro/navbar/images/b.gif?link=http://pro.imdb.com/r/imdb-nav/';"><i>IMDbPro</i></a>
<a id="nb15resume" href="http://resume.imdb.com/" onClick="(new Image()).src='/rg/nav-resume/navbar/images/b.gif?link=http://resume.imdb.com/';"><i>IMDb Resume</i></a>
</div>

```

```

<div id="nb15topbg">
<div id="nb15iesux">
<div id="nb15personal">

```

```

&nbsp;<span><a href="/register/login" onClick="(new Image()).src='/rg/sub-login/navbar/images/b.gif?link=/register/login';">Login</a> |
<a href="/register/?why=personalize" onClick="(new Image()).src='/rg/sub-register/navbar/images/b.gif?link=/register/?why=personalize';">Register</a></span>

```

```

</div>
</div>
</div>
<div id="nb15sub">
<div>
<a href="/" onClick="(new Image()).src='/rg/sub-home/navbar/images/b.gif?link=/';">Home</a> |

```

```

<a href="/chart/" onClick="(new Image()).src='/rg/sub-top/navbar/images/b.gif?link=/chart/';">Top&nbsp;Movies</a> |
<a href="/sections/gallery/" onClick="(new Image()).src='/rg/sub-gallery/navbar/images/b.gif?link=/sections/gallery/';">Photos</a> |
<a href="/indie/" onClick="(new Image()).src='/rg/sub-indie/navbar/images/b.gif?link=/indie/';">Independent&nbsp;Film</a> |
<a href="/sections/games/" onClick="(new Image()).src='/rg/sub-gamebase/navbar/images/b.gif?link=/sections/games/';">GameBase</a> |
<a href="/Browse/" onClick="(new Image()).src='/rg/sub-browse/navbar/images/b.gif?link=/Browse/';">Browse</a> |

```

```

<a href="/help/" onClick="(new Image()).src='/rg/sub-help/navbar/images/b.gif?link=/help/';">Help</a>
</div>
</div>

```

```

<div id="nb15search">
<span class=search><a href="/search" onClick="(new Image()).src='/rg/search-img/navbar/images/b.gif?link=/search';">search</a></span>

```

```

<form method="get" action="/find" name="find">
  <select name="s">
    <option value="all" selected>All</option>
    <option value="tt">Titles</option>
    <option value="ep">TV Episodes</option>

    <option>My Movies</option>

    <option value="nm">Names</option>
    <option value="co">Companies</option>

    <option value="kw">Keywords</option>
    <option value="char">Characters</option>
    <option>Quotes</option>
    <option>Bios</option>
    <option>Plots</option>

  </select>
  <input name="q" size="28" value="">

  <input type="image" id="nb15go_image" src="http://i.media-
imdb.com/images/intl/en/go.gif" alt="go" value="go" title="go">

  <span id="nb15searchlinks">

    <a href="/search" onClick="(new Image()).src='/rg/search-
more/navbar/images/b.gif?link=/search';">more</a> |
    <a href="/help/show_leaf?searchtips" onClick="(new Image()).src='/rg/search-
tips/navbar/images/b.gif?link=/help/show_leaf?searchtips';">tips</a>

  </span>
</form>
</div>
</div>
</div>

<div id="tn15" class="maindetails">

<div id="tn15shopbox" class="title us">
<div class="left edge"></div><div class="right edge"></div>

```

```

<div class="label">SHOP <i>GODFATHER...</i></div>
<div class="logo"></div>
<div class="flags">
<script type="text/javascript">
<!--
function switchStore(co) {
  try {
    var box = document.getElementById('tn15shopbox');
    box.className = box.className.replace(/\b.\b$/, co);
  } catch (e) { return true; }
  return false;
}
//-->
</script>
<a class="us" onclick="return switchStore('us')" href="sales"><b>Amazon.com</b></a>
<a class="ca" onclick="return switchStore('ca')" href="sales"><b>Amazon.ca</b></a>
<a class="uk" onclick="return switchStore('uk')" href="sales"><b>Amazon.co.uk</b></a>
<a class="de" onclick="return switchStore('de')" href="sales"><b>Amazon.de</b></a>
<a class="fr" onclick="return switchStore('fr')" href="sales"><b>Amazon.fr</b></a>
</div>
<div class="stores">
<div class="us">
<a
href="/r/50403000000050a0904747030363836343630000001036a03046674600000010d6a0205
7370000001037a0104700000010f5a0403786f6070000001047" title="The Godfather DVD
available at Amazon.com" class="dvd dvdon"><b>DVD</b></a><a
href="/r/50403000000050a0904747030363836343630000001036a03067863700000010d6a0205
7370000001037a0104700000010f5a0403786f6070000001047" title="The Godfather VHS
available at Amazon.com" class="vhs vhson"><b>VHS</b></a><a
href="/r/50403000000050a0904747030363836343630000001036a0a037f657e64647271636b60
0000010d6a02057370000001037a0104700000010f5a0403786f6070000001047" title="The
Godfather CD available at Amazon.com" class="soundtrack soundtrackon"><b>CD</b></a><a
href="/r/50403000000050a0904747030363836343630000001036a03016c6c600000010d6a0205
7370000001037a0104700000010f5a0403786f6070000001047" title="Search Amazon.com for
all 'The Godfather' products" class="all allon"><b>All</b></a>
</div>
<div class="uk">
<a
href="/r/50403000000050a0904747030363836343630000001036a03046674600000010d6a0205
7b60000001037a0104700000010f5a0403786f6070000001047" title="The Godfather DVD
available at Amazon.co.uk" class="dvd dvdon"><b>DVD</b></a><a
href="/r/50403000000050a0904747030363836343630000001036a03067863700000010d6a0205
7b60000001037a0104700000010f5a0403786f6070000001047" title="The Godfather VHS
available at Amazon.co.uk" class="vhs vhson"><b>VHS</b></a><a
href="/r/50403000000050a0904747030363836343630000001036a0a037f657e64647271636b60
0000010d6a02057b60000001037a0104700000010f5a0403786f6070000001047" title="The

```


Godfather CD available at Amazon.co.uk" class="soundtrack soundtrackon">CDAll

Rent

</div>

<div class="ca">DVDVHSCDAll</div>

<div class="de">DVDVHSCDAll</div>

<div class="fr">DVDVHS<a

href="/r/50403000000050a0904747030363836343630000001036a0a037f657e64647271636b60

0000010d6a02066270000001037a0104700000010f5a0403786f6070000001047" title="The Godfather CD available at Amazon.fr" class="soundtrack soundtrackon">CDAll</div>

</div>

</div>

<div id="tn15crumbs">

IMDb >

The Godfather (1972)

</div>

<div id="tn15lhs">

<div class="photo">

</div>

<h6 style="margin-top: 4px">Quicklinks</h6><form><select id="quicklinks_select" onChange="document.location = this.options[this.selectedIndex].value">

<option value="maindetails" selected>main details</option><option

value="combined">combined details</option><option value="fullcredits">full cast and crew</option><option value="companycredits">company credits</option><option

value="tvschedule">tv schedule</option><option value="usercomments">user

comments</option><option value="externalreviews">external reviews</option><option

value="newsgroupreviews">newsgroup reviews</option><option

value="awards">awards</option><option value="ratings">user ratings</option><option

value="parentalguide">parents guide</option><option

value="recommendations">recommendations</option><option value="board">message

board</option><option value="plotsummary">plot summary</option><option

value="synopsis">plot synopsis</option><option value="keywords">plot

keywords</option><option value="amazon">Amazon.com summary</option><option

value="quotes">memorable quotes</option><option value="trivia">trivia</option><option

value="goofs">goofs</option><option value="soundtrack">soundtrack listing</option><option

value="crazycredits">crazy credits</option><option value="alternateversions">alternate

versions</option><option value="movieconnections">movie connections</option><option

value="faq">FAQ</option><option value="sales">merchandising links</option><option

value="business">box office/business</option><option value="releaseinfo">release

dates</option><option value="locations">filming locations</option><option

value="technical">technical specs</option><option value="laserdisc">laserdisc details</option><option value="dvd">DVD details</option><option value="literature">literature listings</option><option value="news">news articles</option><option value="trailers">trailers and videos</option><option value="posters">posters</option><option value="photogallery">photo gallery</option><option value="miscsites">miscellaneous</option><option value="photosites">photographs</option><option value="soundsites">sound clips</option><option value="videosites">video clips</option></select></form>

<h6>Top Links</h6>

trailers and videosfull cast and crewtriviaofficial sitesmemorable quotes

<h6>Overview</h6>

main detailscombined detailsfull cast and crewcompany creditstv schedule

<h6>Awards & Reviews</h6>

user commentsexternal reviewsnewsgroup reviewsawardsuser ratingsparents guiderecommendationsmessage board

<h6>Plot & Quotes</h6>

plot summaryplot synopsisplot keywordsAmazon.com summarymemorable quotes

<h6>Fun Stuff</h6>

triviagoofssoundtrack listingcrazy creditsalternate versionsmovie connectionsFAQ

<h6>Other Info</h6>

merchandising linksbox office/businessrelease datesfilming locationstechnical specs<a

```

href="laserdisc" class="link">laserdisc details</a><a href="dvd" class="link">DVD
details</a><a href="literature" class="link">literature listings</a><a href="news"
class="link">news articles</a>
<h6>Promotional</h6>
<a href="taglines" class="link empty">taglines</a><a href="trailers" class="link">trailers and
videos</a><a href="posters" class="link">posters</a><a href="photogallery"
class="link">photo gallery</a>
<h6>External Links</h6>
<a href="cinemashowtimes" class="link empty">showtimes</a><a href="officialsites"
class="link empty">official sites</a><a href="miscsites" class="link">miscellaneous</a><a
href="photosites" class="link">photographs</a><a href="soundsites" class="link">sound
clips</a><a href="videosites" class="link">video clips</a> <!-- sid : 65268 :
BOTTOM_LHS_THIN --><br><br><div align="center"><SCRIPT language="JavaScript"
SRC="http://context3.kanoodle.com/cgi-
bin/context.cgi?id=87198815&db=context&cgroup=title115x600&format=sky3&newtarget=1&t
itle=1&signup=1&width=115&numresults=3&titlecolor=003399&linkcolor=003399"></SCRIP
T>      </div>
</div>
<div id="tn15main">

<div id="tn15title">
<h1>The Godfather <span>(<a href="/Sections/Years/1972">1972</a>)</span></h1>
</div>

<div id="tn15adrhs">
<!-- sid : 78099 : TOP_RHS -->
<div align="center">

<SCRIPT language="JavaScript">
var rnd = Math.round(Math.random()*10000000);
document.writeln('<IFRAME
src="http://media.adrevolver.com/adrevolver/banner?place=15175&cpy='+rnd+'" width=300
height=250 scrolling=no allowtransparency=true frameborder=0 marginheight=0
marginwidth=0></IFRAME>');
</SCRIPT>

</div>

advertisement
</div>

<div id="tn15content">

<div class="strip toplinks">
<table><tr>
<td>

```

```

<a href="/title/tt0068646/mediaindex" onClick="(new Image()).src='/rg/title-
top/photos/images/b.gif?link=/title/tt0068646/mediaindex';">

<b>photos</b>
</a>
</td>
<td>
<a href="/title/tt0068646/board" onClick="(new Image()).src='/rg/title-
top/boards/images/b.gif?link=/title/tt0068646/board';">

<b>board</b>
</a>
</td>
<td>
<a href="/title/tt0068646/trailers-screenplay-vi1519190297" onClick="(new
Image()).src='/rg/title-top/trailers/images/b.gif?link=/title/tt0068646/trailers-screenplay-
vi1519190297';">

<b>trailer</b>
</a>
</td>
<td>
<a href="http://pro.imdb.com/title/tt0068646/" onClick="(new Image()).src='/rg/title-
top/pro/images/b.gif?link=http://pro.imdb.com/title/tt0068646/';">

<b>details</b>
</a>
</td>
</tr></table>
</div>

```

```

<div id="tn15rating" class="two guest">
<div class="usr rating">
<a href="/register/?why=vote">Register</a> or <a href="/register/login">login</a> to rate this
title
</div>
<div class="general rating">
<div class="starbar static"><div class="outer"><div class="inner" style="width:
184px"></div></div></div>

```

User Rating:

9.2/10

<small>(276,899 votes)</small>

<div class="bottom">

<div class="left">

Top 250: #1

</div>

<div class="right">

more

</div>

</div>

</div>

</div>

<script>

<!--

function tn15resize(timeout, chain) {

var timer;

return function() {

window.clearTimeout(timer);

timer = window.setTimeout(function() { try {

var w;

if (self.innerWidth) w = self.innerWidth;

else if (document.documentElement && document.documentElement.clientWidth) w =

document.documentElement.clientWidth;

else if (document.body) w = document.body.clientWidth;

document.getElementById('tn15content').className = w < 950 ? 'thin' : 'wide';

} catch (e) { } }, timeout);

if (chain) chain();

}

}

window.onload = tn15resize(1000, window.onload);

window.onresize = tn15resize(100, window.onresize);

(tn15resize(100))();

//-->

</script>

<style type="text/css">

```
.media_strip_thumbs {
  overflow: hidden;
  height: 90px;
}
.media_strip_thumbs img {
  margin-right: 0.2em;
}
</style>
```

```
<table style="border-collapse:collapse;">
<tr>
```

```
<td width="50%" class="media_strip_header">
<b>Photos</b>
<span>(<a href="/rg/photos-title/gallery-link/title/tt0068646/mediaindex">see all 147</a> | <a
href="/rg/photos-title/slideshow-
link/media/rm630888448/tt0068646?slideshow=1">slideshow</a>)</span>
</td>
```

```
<td width="50%" class="media_strip_header">
<b>Videos</b>
</td>
```

```
</tr>
<tr>
```

```
<td>
<div class="media_strip_thumbs">
<a href="/rg/photos-title/summary/media/rm630888448/tt0068646"></a>
<a href="/rg/photos-title/summary/media/rm614111232/tt0068646"></a>
<a href="/rg/photos-title/summary/media/rm597334016/tt0068646"></a>
<a href="/rg/photos-title/summary/media/rm580556800/tt0068646"></a>
<a href="/rg/photos-title/summary/media/rm563779584/tt0068646"><img height="90"
width="90" src="http://ia.media-
```


imdb.com/images/M/MV5BMTk3NjgzNDMzNi5BMl5BanBnXkFtZTYwMDQwMzI2._V1._C
 R0,0,380,380_SS90_.jpg" border="0">

 </div>
 </td>

 <td>
 <div class="media_strip_thumbs">

 </div>
 </td>

 </tr>
 </table>

 <hr/>

Overview

<div class="info">

<h5>Director:</h5>

Francis Ford Coppola

</div>

<div class="info">

<h5>Writers:</h5>

Mario Puzo (novel)
Mario Puzo (screenplay) ...
<a class="tn15more"

href="fullcredits#writers">more

</div>

<div class="info">

<h5>Release Date:</h5>

24 March 1972 (USA)

<a class="tn15more inline" href="/title/tt0068646/releaseinfo" onClick="(new

Image()).src='/rg/title-

tease/releasedates/images/b.gif?link=/title/tt0068646/releaseinfo';">more

<a style="margin-left: 1em" class="tn15more inline" href="/title/tt0068646/trailers-screenplay-

vi1519190297" onClick="(new Image()).src='/rg/title-

tease/trailers/images/b.gif?link=/title/tt0068646/trailers-screenplay-vi1519190297';">view

trailer

</div>

<div class="info">

<h5>Genre:</h5>

Drama | Thriller <a class="tn15more inline"

href="/title/tt0068646/keywords" onClick="(new Image()).src='/rg/title-

tease/keywords/images/b.gif?link=/title/tt0068646/keywords';">more

</div>

<div class="info">

<h5>Plot:</h5>

The aging patriarch of an organized crime dynasty transfers control of his clandestine empire to his reluctant son. <a class="tn15more inline" href="/title/tt0068646/plotsummary"

onClick="(new Image()).src='/rg/title-

tease/plotsummary/images/b.gif?link=/title/tt0068646/plotsummary';">full summary | full synopsis (warning! may contain spoilers)

</div>

<div class="info">

<h5>Plot Keywords:</h5>

Shot In The Throat

|

Bar

|

Profanity

|

Sidewalk

|

Son

more

</div>

<div class="info">

<h5>Awards:</h5>

Won 3 Oscars.

Another 19 wins

&

17 nominations

more

</div>

<div class="info">

<h5>User Comments:</h5>

For me it isn't "the greatest ever", but it's still great

more

</div>

<hr/>

<div class="headerinline"><h3>Cast</h3> <small style="position: relative; bottom: 1px">(Cast overview, first billed only)</small></div><div class="info"><table class="cast">

<tr class="odd"><td class="hs"><a href="/name/nm0000008/" onClick="(new

Image()).src='/rg/title-tease/tinyhead/images/b.gif?link=/name/nm0000008/'">
</td><td class="nm">Marlon Brando</td><td class="ddd"> ... </td><td

class="char">Don Vito Corleone</td></tr><tr

class="even"><td class="hs"><a href="/name/nm0000199/" onClick="(new

Image()).src='/rg/title-tease/tinyhead/images/b.gif?link=/name/nm0000199/'">
</td><td class="nm">Al Pacino</td><td class="ddd"> ... </td><td class="char">Michael Corleone</td></tr><tr class="odd"><td class="hs">
</td><td class="nm">James Caan</td><td class="ddd"> ... </td><td class="char">Santino 'Sonny' Corleone</td></tr><tr class="even"><td class="hs"></td><td class="nm">Richard S. Castellano</td><td class="ddd"> ... </td><td class="char">Peter Clemenza (as Richard Castellano)</td></tr><tr class="odd"><td class="hs"></td><td class="nm">Robert Duvall</td><td class="ddd"> ... </td><td class="char">Tom Hagen</td></tr><tr class="even"><td class="hs"></td><td class="nm">Sterling Hayden</td><td class="ddd"> ... </td><td class="char">Capt. McCluskey</td></tr><tr class="odd"><td class="hs"></td><td class="nm">John Marley</td><td class="ddd"> ... </td><td class="char">Jack Woltz</td></tr><tr class="even"><td class="hs"></td><td class="nm">Richard Conte</td><td class="ddd"> ... </td><td class="char">Don Emilio Barzini</td></tr><tr class="odd"><td class="hs"></td><td class="nm">Al Lettieri</td><td class="ddd"> ... </td><td class="char">Virgil 'The Turk' Sollozzo</td></tr><tr class="even"><td class="hs"><a href="/name/nm0000473/"

onClick="(new Image()).src='/rg/title-tease/tinyhead/images/b.gif?link=/name/nm0000473/';">
</td><td class="nm">Diane Keaton</td><td class="ddd"> ... </td><td class="char">Kay Adams</td></tr><tr class="odd"><td class="hs"></td><td class="nm">Abe Vigoda</td><td class="ddd"> ... </td><td class="char">Sal Tessio</td></tr><tr class="even"><td class="hs">
</td><td class="nm">Talia Shire</td><td class="ddd"> ... </td><td class="char">Connie Corleone Rizzi</td></tr><tr class="odd"><td class="hs"></td><td class="nm">Gianni Russo</td><td class="ddd"> ... </td><td class="char">Carlo Rizzi</td></tr><tr class="even"><td class="hs"></td><td class="nm">John Cazale</td><td class="ddd"> ... </td><td class="char">Fredo Corleone</td></tr><tr class="odd"><td class="hs"></td><td class="nm">Rudy Bond</td><td class="ddd"> ... </td><td class="char">Don Carmine Cuneo</td></tr></table>more</div><hr>

<h3>Additional Details</h3>

<div class="info">

<h5>Also Known As:</h5>Mario Puzo's The Godfather (USA) (complete title)

more

</div>

<div class="info">

<h5>Parents Guide:</h5>

View content advisory for parents

</div>

<div class="info">

<h5>Runtime:</h5>

175 min

</div>

<div class="info">

<h5>Country:</h5>

USA

</div>

<div class="info">

<h5>Language:</h5>

English

|

Italian

|

Latin

</div>

<div class="info">

<h5>Color:</h5>

Color <i>(Technicolor)</i>

</div>

<div class="info">

<h5>Aspect Ratio:</h5>

1.85 : 1 more

</div>

<div class="info">

<h5>Sound Mix:</h5>

DTS <i>(re-release)</i> |

Mono

</div>

<div class="info">

<h5>Certification:</h5>

Australia:M <i>(TV rating)</i> |

Canada:18A |

UK:15 <i>(DVD) (2007)</i> |

Philippines:R-18 |

Colombia:18 |

Canada:PA <i>(Manitoba)</i> |

Canada:AA <i>(Ontario)</i> |

Spain:13 <i>(re-rating)</i> |

Argentina:18 |

Australia:R |

Austria:16 |

Canada:13+ <i>(Quebec)</i> |

Chile:18 |

Denmark:15 |

Finland:K-16 <i>(re-rating)</i> |

Finland:K-18 <i>(original rating)</i> |

France:12 |

 Hong Kong:IIB |

 Iceland:16 |

 Ireland:18 |

 Israel:PG |

 Italy:VM14 |

 Japan:R-15 |

 Mexico:C |

 Netherlands:16 |

 New Zealand:R16 |

 Norway:18 |

 Peru:18 |

 Portugal:17 <i>(original rating)</i> |

 Portugal:M/18 <i>(re-rating)</i> |

 Singapore:M18 |

 South Korea:18 |

 Spain:18 |

 Sweden:15 |

 UK:18 <i>(video rating) (1987)</i> |

 UK:X <i>(cut)</i> |

 USA:R |

 West Germany:16 |

 Poland:15 |

Brazil:14

</div>

<div class="info">

<h5>Filming Locations:</h5>

110 Longfellow Road, Staten Island, New York City, New York, USA

more

</div>

<div class="info">

<h5>MOVIEmeter: </h5>

 20% since last week

why?

</div>

<div class="info">

<h5>Company:</h5>

Paramount Pictures

more

</div>

<hr/>

<h3>Fun Stuff</h3>

<div class="info">

<h5>Trivia:</h5>

Nino Rota was originally nominated for an Oscar for his score (and would probably have won) but the nomination was withdrawn when it was realized

that he had substantially re-worked parts of his earlier score for Fortunella (1958).

more
</div>

<div class="info">

<h5>Goofs:</h5>

Continuity: When Don Coreleone is talking to the pastry shop owner during the wedding scene, the man is holding a small shot glass. As he is getting up to grab Don Coreleone's hands, the glass is still in his hand but in the next shot it is gone.

more
</div>

<div class="info">

<h5>Quotes:</h5>

[<i class="fine">first lines</i>]

Bonasera:

I believe in America. America has made my fortune. And I raised my daughter in the American fashion. I gave her freedom, but I taught her never to dishonor her family. She found a boyfriend; not an Italian. She went to the movies with him; she stayed out late...

more
</div>

<div class="info">

<h5>Movie Connections:</h5>

Spoofed in The Underground Comedy Movie (1999)

more
</div>

<div class="info">

<h5>Soundtrack:</h5>

Manhattan Serenade

more
</div>

<hr/>

<h3>FAQ</h3>

[How did Michael know about Carlo and Sonny?](/title/tt0068646/faq#.2.1.5)

```
<a name="comment"><h3>User Comments</h3></a>&nbsp;&nbsp;&nbsp;<a
href="usercomments-enter"><span>(Comment on this title)</span></a>
```

<script type="text/javascript">

<!--

```
function yn(id, vote) {
  if (!document.getElementById || !document.createElement || !document.removeChild ||
    !document.appendChild || !document.childNodes || !document.createTextNode) return true;
```

```
var i = new Image();
i.onload = function() { ynd(id, 1) };
i.onerror = function() { ynd(id, 0) };
i.src = 'usercomments-vote?yni_'+id+'='+vote;
return false;
```

}

```
function ynd(id, status) {
```

```
var d, s, t;
if (!(d = document.getElementById('ynd_'+id))) return true;
while (d.childNodes.length) d.removeChild(d.childNodes[0]);
var s = document.createElement('span');
if (!status) s.setAttribute('class', 'error');
var t = document.createTextNode(status ? 'Thank you, your vote will be counted and appear on
this page within 24 hours.' : 'Sorry, there was a problem collecting your vote.');
```

```

}
//-->
</script>

```

```

<div class="small">
258 out of 413 people found the following comment useful:-
</div>

```

```

<b>For me it isn't "the greatest ever", but it's still great</b>, 24 April 2005<br>
<br>

```

```

<div class="small">

```

```

Author:

```

```

<a href="/user/ur0139258/comments">Brandt Sponseller</a> <small>from New York
City</small>
</div>

```

```

</p>

```

```

<p>

```

Marlon Brando is Don Vito Corleone, head of perhaps the most powerful New York-area mafia family in the 1940s, in this well-respected film by director/writer Francis Ford Coppola. As the film begins, Vito is receiving "business" guests in his office at his home while his daughter Connie's (Talia Shire) wedding and reception are taking place. The epic plot takes place over many years, telling the story of Vito, his family--including Michael (Al Pacino), Santino (James Caan) and Tom Hagen (Robert Duvall), his associates, and their interactions with other mob syndicates.

The Godfather is commonly considered to be one of the "greatest films of all time". Even though I've given it a 10, I wouldn't put that same kind of exalted emphasis on it. I've given literally thousands of films 10s over the years, and for me, Godfather just barely made a 10. I think it has a number of flaws, but Coppola also has a knack for transcending the problems with some brilliant move or another. At any rate, it is definitely must-see viewing--even if it's only because it's so highly regarded--if you've not experienced the film yet. I think it's a good idea to attain cultural literacy, and films as popularly loved as The Godfather become necessary elements in achieving that literacy.

Shorn of its gangster trappings, The Godfather is sprawling and soap-operatic in tone. The sprawl is appropriate to its origins as a novel by Mario Puzo, who also co-wrote the screenplay with Coppola. There is a large cast of characters--maybe too large, as it can be difficult to keep track of just who everyone is. Even after you've watched the film a couple times you may find scenes where mobsters seem to spontaneously appear and you catch yourself saying, "Wait, who is that guy supposed to be again?" The soap opera angle can be a positive

or negative depending on your tastes. I tend to not like soap-operatic stories, but of course Coppola put yummy gangster topping on this one to make it palatable for guys like me. At root, though, The Godfather is concerned with realistic depictions of a very dysfunctional family as they try to make it through life--including marriages, births, adultery, spats between family members, tiffs with others in their community, and so on. My theory is that the soap opera angle accounts for much of the film's appeal. For me, it (and the slight lack of focus from the sprawl) accounts for much of the reason that I barely gave the film a 10.

But two things help the film transcend a lower score for me. Even though the gangster stuff has been far surpassed in graphic brutality in the intervening years, the dramatic context of the violence usually gives it tremendous impact. Films like Ichi the Killer (2001), which I just watched for the first time the night before watching The Godfather again, make the Godfather's brutality fit for Sesame Street in comparison. However, although Ichi's violence is effective, setting that knob to "11" doesn't make it better. Besides, Ichi is so over the top that it would make many Godfather fans want to hurl.

To the extent that Coppola and Puzo just focus on the extended Corleone family, they create tremendous depth in their relationships. The whole film can be looked at as a fascinating depiction of "oscillating" dynamics in the family, with the pole pairs being interacting/distancing, control/lack of control, benevolence/malevolence. Most character stances and actions are some combination of those ranges of characteristics, and everyone dances around the poles, so to speak, throughout the film. From this angle, even the attractive surface violence (well, attractive to us fans of that stuff in artworks) is mainly there for the purpose of pushing characters more to one pole or the other. There is an implication that underlying these mechanisms is some natural tendency towards achieving (a dynamic) equilibrium.

But there are more superficial stylistic factors that help push my score up to a 10, also. The most obvious, which everyone and their grandparents have mentioned, are the performances. It's tough to go wrong when you have a cast including Al Pacino, Marlon Brando, Robert Duvall, James Caan, Diane Keaton, and so on. Another commonly mentioned element that I agree is fantastic and superbly integrated to create atmosphere is Nino Rota's score.

Less often mentioned is the consistently intriguing cinematography by Gordon Willis. Most of Willis' unusual shots in the film are so subtle as to be barely noticeable unless you're looking for them. The opening, for example, consists of a long (it lasts a few minutes) "zoom out" from Amerigo Bonasera (Salvatore Corsitto). The shot is beautifully lit--most of the frame is extremely dark, giving Bonasera a chiaroscuro effect (the opening is also unusual in that it's a long monologue from

a minor character).

Willis and Coppola have a knack for placing their actors in the frame to create depth and interesting visual patterns. This is done so slyly that at first blush you wouldn't believe it's something they thought about, but if you keep this in mind while watching, you can see delightful visual paths that zigzag, wind to a focal point, and so on, all created by the confluence of actors and scenery in the frame.

If you haven't seen The Godfather before, the most important thing you can do before watching is to forget about all of the "greatest film of all time" hype. That's only likely to set up expectations that could never be met; more than likely you'll be disappointed. Just think of it as one of the better films from one of Hollywood's more admirable but relatively odder directors, featuring earlier performances from a very well known cast, and keep in mind that it's as much a "historical family saga" as a crime or gangster film.

```
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<input type="hidden" name="why" value="comment_vote">Was the above comment useful to
you?
<input class="click" type="image" value="yes" src="http://i.media-
imdb.com/images/tn15/btn_yes.gif" width="34" height="19">
<input class="click" type="image" value="no" src="http://i.media-
imdb.com/images/tn15/btn_no.gif" width="34" height="19">
```

```
</form>
</div>
```

```
</div>
```

```
<a class="tn15more" href="/title/tt0068646/usercomments" onClick="(new
Image()).src='/rg/title-tease/comments-
bottom/images/b.gif?link=/title/tt0068646/usercomments';">more</a>
```

```
<hr/>
```

```
<h3>Message Boards</h3>
```

```
Discuss this title with other users on <a href="/title/tt0068646/board" onClick="(new
Image()).src='/rg/title-tease/boards-top/images/b.gif?link=/title/tt0068646/board';">IMDb
message board for The Godfather (1972)</a>
```

```
<table class="boards">
```

```
<tr><th class="left">Recent Posts (updated daily)</th><th class="right">User</th></tr>
```

```
<tr class="odd">
```


<td>Why is This #1????</td>

<td>Dragoneyed363</td>
</tr>

<tr class="even">

<td>Luca Brasi or Al Neri?</td>

<td>hucklebuck</td>
</tr>

<tr class="odd">

<td>Breasts in explosion?</td>

<td>bigasabus</td>
</tr>

<tr class="even">

<td>So...for how long did Michael know about _____'s betrayal? *SPOILERS*</td>

<td>Judo_Koala</td>
</tr>

<tr class="odd">

<td>OMG!!</td>

<td>The_godfather008</td>
</tr>

</table>

more

<hr/>

<h3>Recommendations</h3>

<div class="strip">

If you enjoyed this title, our database also recommends:

<table class="recs">

<tr class="poster">

<td></td>

<td></td>

<td></td>

<td></td>

<td></td>

</tr>

<tr>

<td>The Godfather: Part II</td>

<td>Scarface</td>

<td>Chik loh go yeung</td>

<td>Wild at Heart</td>

<td>Jitsuroku Andô Noboru kyôdô-den: Rekka</td>

</tr>

<tr class="rating">

<td class="first">

<small>IMDb User Rating:</small>

<div class="tinystarbar"><div style="width: 90px"></div></div>

</td>

<td>

<small>IMDb User Rating:</small>

<div class="tinystarbar"><div style="width: 81px"></div></div>

</td>

<td>

<small>IMDb User Rating:</small>

<div class="tinystarbar"><div style="width: 59px"></div></div>

</td>

```

<td>
<small>IMDb User Rating:</small>
<br/>
<div class="tinystarbar"><div style="width: 71px"></div></div>
</td>

<td>
<small>IMDb User Rating:</small>
<br/>
<div class="tinystarbar"><div style="width: 65px"></div></div>
</td>

</tr>
</table>
<a href="/AddRecommendation?const=0068646">Add a recommendation</a> |
<a href="/title/tt0068646/recommendations" onClick="(new Image()).src='/rg/title-
tease/recommendations/images/b.gif?link=/title/tt0068646/recommendations';">Show more
recommendations</a>
</div>
<h3>Related Links</h3><table>
<tr><td width="33%" style="width: 400px"> <a href="/title/tt0068646/fullcredits"
onClick="(new Image()).src='/rg/title-related/maindetails-
fullcredits/images/b.gif?link=/title/tt0068646/fullcredits';">Full cast and crew</a></td><td
width="33%" style="width: 400px"> <a href="/title/tt0068646/companycredits" onClick="(new
Image()).src='/rg/title-related/maindetails-
companycredits/images/b.gif?link=/title/tt0068646/companycredits';">Company
credits</a></td><td width="33%" style="width: 400px"> <a
href="/title/tt0068646/externalreviews" onClick="(new Image()).src='/rg/title-
related/maindetails-
externalreviews/images/b.gif?link=/title/tt0068646/externalreviews';">External
reviews</a></td></tr><tr><td width="33%" style="width: 400px"> <a
href="/title/tt0068646/news" onClick="(new Image()).src='/rg/title-related/maindetails-
news/images/b.gif?link=/title/tt0068646/news';">News articles</a></td><td width="33%"
style="width: 400px"> <a href="/chart/top?tt0068646" onClick="(new Image()).src='/rg/title-
related/maindetails-top/images/b.gif?link=/chart/top?tt0068646';">IMDb top 250
movies</a></td><td width="33%" style="width: 400px"> <a href="/Sections/Genres/Drama/"
onClick="(new Image()).src='/rg/title-related/maindetails-
genre/images/b.gif?link=/Sections/Genres/Drama/';">IMDb Drama
section</a></td></tr><tr><td width="33%" style="width: 400px"> <a
href="/Sections/Countries/USA/" onClick="(new Image()).src='/rg/title-related/maindetails-
country/images/b.gif?link=/Sections/Countries/USA/';">IMDb USA section</a></td><td
width="33%" style="width: 400px"> <a href="/mymovies/list?pending&amp;add=0068646"
onClick="(new Image()).src='/rg/title-related/maindetails-
mymovies/images/b.gif?link=/mymovies/list?pending&amp;add=0068646';">Add this title to
MyMovies</a></td>

```

```

</table>
<div id="tn15bot">
  <div class="right">
    <!-- sid : 65263 : GOOGLE --><div style="text-align:center">
    <iframe name="kanoodleAd" src="http://i.imdb.com/3pads/kanoodle-title.html" align="top"
    scrolling="no" width="410" height="245" frameborder="0" marginheight="0" marginwidth="0"
    align="middle"></iframe>
  </div>
</div>
<div class="left">
  <p><form method="post" action="/updates"><input type="hidden" name="auto"
  value="legacy/title/tt0068646/"><input type="image" width="67" height="21" name="Update"
  src="http://i.media-imdb.com/images/tn15/update.gif" border="0"
  alt="Update"></p><p><i>You may report errors and omissions on this page to the IMDb
  database managers. They will be examined and if approved will be included in a future update.
  Clicking the 'Update' button will take you through a step-by-step process.</i></p></form>

</div>
<br clear="right"/>
</div>

</div>
</div>
<br clear="both" />

<div id="footer" class="ft">
<hr width="100%" size=1>
<p class="footer" align="center">
<a href="/">Home</a>&nbsp;
| <a href="/search">Search</A>&nbsp;
| <a href="/NowPlaying/">Now Playing</a>&nbsp;
| <a href="/News/">News</A>&nbsp;
| <a href="/register/?why=mymovies_footer">My Movies</A>&nbsp;
| <a href="/Games/">Games</A>&nbsp;
| <a href="/boards/">Boards</A>&nbsp;
| <a href="/help/">Help</a>&nbsp;
| <A HREF="/Showtimes">US&nbsp;Movie&nbsp;Showtimes</A>&nbsp;
| <A HREF="/top_250_films">Top 250</A>&nbsp;
| <a href="/register/?why=footer">Register</a>&nbsp;
| <A HREF="/recommends/">Recommendations</A>&nbsp;
| <A HREF="/widgets/">Widgets</A><br>
<A HREF="/Charts/">Box&nbsp;Office</A>
| <A HREF="/a2z">Index</A>
| <A HREF="/Sections/Trailers/">Trailers</A>

```

```

| <a href="/jobs"><b>Jobs</b></a>&nbsp;
| <a href="https://secure.imdb.com/register/subscribe?c=a394d4442664f6f6475627"
onClick="(new
Image()).src='/rg/PRO_FOOT/FOOTER/images/b.gif?link=https://secure.imdb.com/register/sub
scribe?c=a394d4442664f6f6475627';">
  <span style="color:#cc3333"><b>IMDbPro.com&nbsp;-
&nbsp;Free&nbsp;Trial</b></span></a>
| <a href="http://resume.imdb.com" onClick="(new Image()).src='/rg/resume-
footer/footer/images/b.gif?link=http://resume.imdb.com';"><span
style="color:#cc3333"><b>IMDb Resume</b></span></a>
<br><br>
<a href="/help/show_article?conditions">Copyright &copy;</a> 1990-2008
<a href="/help/">IMDb.com, Inc.</a><br>
<a href="/help/show_article?conditions">Terms</a> and <a href="/privacy">Privacy Policy</a>
under which this service is provided to you.<br>
An <a href="http://www.amazon.com/exec/obidos/redirect-home/internetmoviedat">
</a> company.&nbsp;
<a href="/advertising">Advertise</a> on IMDb.&nbsp;
<a href="/tiger_redirect?FT_LIC&/Licensing/">License</a> our content.
</p>
<p class="footer" align="center">IMDb is powered by Perl and <b><a href="/rg/jobs/footer-
pbp/help/show_leaf?jobatimdb">we are hiring</a></b>!!</p>
</div>

</layer>
</div>
<!-- sid : 78101 : BOTTOM_BANNER -->
<div align="center">
<script language="JavaScript">
var rnd = Math.round(Math.random()*10000000);
document.writeln('<iframe
src="http://uac.advertising.com/wrapper/aceUAC.htm#Site=705838&Size=728090&bnum='+rnd+
'" scrolling="no" width="728" height="090" frameborder="0" marginheight="0"
marginwidth="0" title="Advertisement"></iframe>');
</script>
</div>

<!-- sid : 78242 : BOTTOM_SCRIPT -->

</div> <!-- id="wrapper" -->

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<iframe  
src="http://images.amazon.com/images/G/01/advertising/associate._V259486457_.html?638-  
0468053-3125496" width="0" height="0" frameborder="0" style="display:none;"></iframe>  
</body>  
</html>
```

Exhibit 12

Exhibit 12: Javascript code served by the “shots.snap.com” server

The following request to the “shots.snap.com” server:

http://shots.snap.com/ss/spakey/snap_shots.js

returned to the user the following Javascript code:

```

/*! Snap Shots Code Copyright (c) 2008, Snap Technologies, Inc. All rights reserved.
 * Your use of this code is subject to the Snap Shots Terms of Service
 * located at https://account.snap.com/print_terms.php
 */
if (typeof SNAP_COM == "undefined") { SNAP_COM = { shot_main_js_called: false };
} SNAP_COM.shot_config =
{ version:"3.29",prefix:{ image:"http://shots.snap.com/images/v3.29/",cdn:"http://i.ixnp.com/",cd
n_image:"http://i.ixnp.com/images/v3.29/",cdn_js:"http://i.ixnp.com/javascript/v3.29/",theme:"ht
tp://i.ixnp.com/images/v3.29/theme/silver/",link:"http://shots.snap.com/",options:"http://shots.sn
ap.com/",preview:"http://shots.snap.com/",spasense:"http://shots.snap.com/",bg:"http://i.ixnp.co
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l,lang:"en-
us",rtl:0,force:null,trigger_position:"default",check_defer:false,observe_event:"body",has_marea
:true,ad_type:"default",auto_preview:true,show_internal:false,preview_only:false,no_rss:0,rich_
only:false,plugin:false,rescan_after_load:false,thumbnail_precrawl:0,show_link_icon:false,previ
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ap",redirect_param:null,client_ip:"71.206.180.243",user_agent:"Mozilla%2F5.0+%28Windows
%3B+U%3B+Windows+NT+5.1%3B+en-
US%3B+rv%3A1.8.1.14%29+Gecko%2F20080404+Firefox%2F2.0.0.14",srate:{ main:0.001,aut
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0},img:{ cobrand:"http://i.ixnp.com/images/v3.29/t.gif",link_icon:"http://i.ixnp.com/images/v3.2
9/t.gif",png_palette:"http://i.ixnp.com/images/v3.29/theme/silver/palette.png",palette:"http://i.ixn
p.com/images/v3.29/theme/silver/palette.gif"},pointer:{ r_offset:4,top:{ x:7,y:1},bottom:{ x:7,y:8}
,left:{ x:2},right:{ x:7},steps:"6",w0:200,w:20,x0:5,x:5},css_pos:{ main:{ x:0,y:0,w:478,h:441},bu
bble:{ x:1,y:1,w:472,h:392},bg_div_tl:{ x:0,y:0,w:50,h:50},bg_div_tr:{ xr:0,y:0,w:50,h:50},bg_di
v_bl:{ x:0,yb:1,w:50,h:50},bg_div_br:{ xr:0,yb:1,w:50,h:50},bg_img_l:{ x:0,y:50,w:100,h:100},b
g_img_r:{ xr:0,y:50,w:100,h:100},bg_img_t:{ x:50,y:0,w:100,h:100},bg_img_b:{ x:50,yb:1,w:10
0,h:100},bg_div_point:{ x:50,y:50,w:43,h:41},bg_body:{ x:2,yb:37,w:470,h:177},bubble_img:{ x
:0,y:0,w:472,h:392},body:{ x:0,y:0,w:472,h:392},top_left_menu:{ x:1,y:1,w:null,h:null},top_righ
t_menu:{ xr:1,y:1,w:null,h:null},option_menu:{ xr:20,y:18,w:null,h:null},url_wrapper:{ x:6,y:5,w
:null,h:null},preview_div:{ x:0,y:20,w:470,h:302},preview:{ x:0,y:0,w:470,h:302},preview_img:
{x:0,y:0,w:null,h:null},img_a:{ x:23,yb:12,w:420,h:256},loading_img:{ x:0,y:0,w:null,h:null},sea

```



```

rch:{x:1,yb:31,w:470,h:78},ribbon:{xr:98,yb:5,w:17,h:20},logo_a:{xr:7,yb:8,w:null,h:null},box:
{x:12,y:24,w:390,h:25},submit:{xr:7,y:23,w:null,h:null},flash_overlay:{x:0,y:50,w:472,h:275},
drag_overlay:{x:0,y:0,w:472,h:20},cobrand_img:{x:9,yb:6,w:null,h:null},cobrand_a:{x:10,yb:8,
w:null,h:15},promo:{x:10,yb:8,w:null,h:15},options:{x:0,y:0,w:472,h:null},option_menu_bar:{x
r:1,y:1,w:null,h:null},option_iframe:{x:0,y:20,w:471,h:207},option_cancel:{xr:54,y:201,w:50,h:
21},maread_ad:{x:1,yb:30,w:470,h:382},maread:{x:1,yb:30,w:470,h:79},link_icon:{x:null,y:null,
w:14,h:12},pointer0:{w:1,h:1},pointer1:{w:1,h:1},pointer2:{w:1,h:1},pointer3:{w:1,h:1},pointer
4:{w:1,h:1},pointer5:{w:1,h:1}},rtl_css_pos:{0:"promo",1:"logo_a",2:"submit",3:"box",4:"optio
n_cancel",5:"cobrand_img",6:"ribbon"},style:{link_icon:{padding:"1px 0 0
0",textDecoration:"none",position:"static"},favicon:{position:"static",display:"inline"},url:{posit
ion:"static",display:"inline",fontSize:"13px",fontWeight:"bold",textAlign:"left"},arrow:{position
:"static",display:"inline"},search:{backgroundColor:"#eeeeee"},preview:{backgroundColor:"#fff
fff"},maread:{overflow:"hidden",backgroundColor:"#eeeeee"},body:{textAlign:"left"},bg_body:{
backgroundColor:"#d8d8d9"},share_button:{display:"inline"},option_button:{display:"inline"},
zoom_img:{display:"inline"},option_button_disabled:{display:"inline"},pin_close_img:{display
:"inline"},promo_icon:{display:"inline"},preview_toggle:{display:"inline"},rss_toggle:{display:
"inline"},drag_overlay:{backgroundColor:"transparent"},flash_overlay:{backgroundColor:"trans
parent"},option_close_a:{fontSize:"10px",fontWeight:"normal",color:"#857a7a",textDecoration:
"none"},option_menu:{fontSize:"10px",fontFamily:"Trebuchet",color:"#333",backgroundColor:
"white",border:"1px solid
#8b8a8a"},option_a:{whiteSpace:"nowrap",height:"17px",paddingLeft:"5px",paddingRight:"5px
"},option_cancel:{border:"1px solid
#999",fontSize:"11px",color:"#333",background:"url(http://i.ixnp.com/images/btn-
bkgd.gif)",disable_a:{whiteSpace:"nowrap",height:"17px",paddingLeft:"5px",paddingRight:"5
px",borderTop:"1px solid
#c0c0c0"},url_a:{fontSize:"13px",fontWeight:"bold",textDecoration:"underline",color:"#00E",b
ackgroundColor:"white",textAlign:"left"},url_arrow:{backgroundColor:"white"},url_favicon:{b
ackgroundColor:"white"},promo_a:{fontSize:"11px",color:"#333333",textDecoration:"none",bor
derBottom:"1px dotted #747274"},promo:{direction:"ltr"},preview_div:{border:"1px solid
#c4c4c4",overflow:"hidden",backgroundColor:"#FFFFFF"},img_a:{border:"1px solid
#999999",overflow:"hidden",backgroundColor:"#FFFFFF"},submit:{margin:"0",marginLeft:"5p
x",padding:"2px",paddingTop:"1px",paddingBottom:"2px",cursor:"pointer",fontSize:"11px",col
or:"#444",textAlign:"center"},box:{paddingTop:"5px",fontSize:"12px",border:"1px solid
#999999",color:"#333333",visibility:"inherit",backgroundColor:"",direction:"ltr"}},offset:{mare
a:79},hidden:["maread","link_icon","option_menu","top_left_menu","lg"],collapsed:["pin_close_i
mg","maread_ad"],t_img:["cobrand_img"],retry_interval:[8000,5000,5000,5000,5000,5000],parti
al_check:{delay:2000,attempts:5},rescan_delay:1000,href:{logo:"http://www.snap.com/",cobran
d:"http://www.snap.com/about/shots.php",shot_signup:"https://account.snap.com/signup.php",cli
ent_download:"http://www.snap.com/about/shotsdownload.php",client_about:"http://www.snap.
com/about/addon.php",ribbon:"http://www.snap.com/snapshots.php",whatsnew:"http://blog.snap
.com/2007/11/04/what-is-new-with-snap-
shots"},attribution_split_test_suffix:"_6",palette:{promo_icon:{loc:"-1058px
0",w:14,h:12},link_icon:{loc:"-1058px 0",w:14,h:12},logo_a:{loc:"-950px
0",w:81,h:15},previewby:null,share_button:{loc:"-855px
0",w:50,h:16},share_button_over:{loc:"-805px 0",w:50,h:16},option_button:{loc:"-634px
0",w:27,h:18},option_button_over:{loc:"-561px 0",w:27,h:18},zoom_img_plus:{loc:"-515px

```

0",w:23,h:18},zoom_img_plus_over:{loc:"-611px 0",w:23,h:18},zoom_img_minus:{loc:"-588px 0",w:23,h:18},zoom_img_minus_over:{loc:"-538px 0",w:23,h:18},option_close_a:{loc:"-707px 0",w:23,h:18},option_close_a_over:{loc:"-684px 0",w:23,h:18},option_button_disabled:{loc:"-730px 0",w:27,h:18},pin_close_img:{loc:"-707px 0",w:23,h:18},pin_close_img_over:{loc:"-684px 0",w:23,h:18},preview_toggle:{loc:"-419px 0",w:25,h:18},preview_toggle_over:{loc:"-369px 0",w:25,h:18},preview_toggle_selected:{loc:"-394px 0",w:25,h:18},rss_toggle:{loc:"-344px 0",w:25,h:18},rss_toggle_over:{loc:"-444px 0",w:25,h:18},rss_toggle_selected:{loc:"-319px 0",w:25,h:18},favicon:{loc:"-773px 0",w:16,h:16},submit:{loc:"-164px 0",w:55,h:29},arrow:{loc:"-1081px 0",w:7,h:7}},png_palette:{bg_br:{x:"0",y:"0",w:50,h:50},bg_tl:{x:"50",y:"0",w:50,h:50},bg_tr:{x:"100",y:"0",w:50,h:50},bg_bl:{x:"150",y:"0",w:50,h:50},point_l:{x:"200",y:"0",w:22,h:33},point_r:{x:"222",y:"0",w:26,h:32},point_br:{x:"248",y:"0",w:28,h:29},point_bl:{x:"276",y:"0",w:28,h:29},point_tl:{x:"304",y:"0",w:27,h:26},point_tr:{x:"331",y:"0",w:29,h:26}},rich_shot_re:[".wikipedia.org/wiki/", "imdb\\.com.*\\/(title|name)\\/(tt|nm)[\\d]+(\\|\\w*)?\$", "finance\\.yahoo\\.com/q/(bc)?\\?s=", "finance\\.google\\.com/finance\\?q=", "moneycentral\\.msn\\.com/detail/stock_quote\\?Symbol=", "money\\.cnn\\.com/quote/quote\\.html", "marketwatch\\.com/quotes/", "quote\\.morningstar\\.com/Quote/Quote\\.aspx\\?ticker=", "quotes\\.nasdaq\\.com/asp/SummaryQuote.aspx\\?symbol=", "www\\.nyse\\.com/about/listed/lcddata.html\\?ticker=", "youtube\\.com/v/", "youtube\\.com/\\?v=", "youtube\\.com/watch\\?v=", "video\\.google\\.com|ca|cn|co\\.uk|com\\.au|de|es|fr|it|jp|nl|pl|googleplayer\\.swf\\?docId=", "video\\.google\\.com|ca|cn|co\\.uk|com\\.au|de|es|fr|it|jp|nl|pl|url\\?docid=", "video\\.google\\.com|ca|cn|co\\.uk|com\\.au|de|es|fr|it|jp|nl|pl|videoplay\\?", "photobucket\\.com/albums", "amazon\\.com/(gp/product(dp)/[A-Z0-9]{10})/", "amazon\\.com/\\.+\\/(ASIN|asin)\\/[A-Z0-9]{10}", "amazon\\.com/exec/obidos/(ASIN|asin)/[A-Z0-9]{10}", "amazon\\.com/[^\\+]/dp/[A-Z0-9]{10}/", "amazon\\.com/-/[A-Z0-9]{10}/", "amazon\\.com/[^\\+]/dp/", "amazon\\.com%2F[^\\+]%2Fdp%2F", "flickr\\.com/photos/", "picasaweb\\.google\\.com|ca|co\\.uk|com\\.au|de|es|fr|it|nl|pl|\\.+\\.+", ".mp3\$", "seekingalpha.com/symbol/.+", "stocks\\.us\\.reuters\\.com/stocks/(overview|charts)\\.asp\\?(symbol|ticker)=", "stock s\\.us\\.reuters\\.com/stocks/companyNews\\.asp\\?symbol=", "metacafe\\.com/watch/", "one\\.revver\\.com/watch/", "video\\.xanga\\.com/.+/video.html", "vids\\.myspace\\.com/", "veoh\\.com/videos/", "myspace\\.com/", "maps\\.google\\.com/maps", "wowhead\\.com.+item=", "wowarmory\\.com/item-info.xml", "thottbot\\.com/i", "wow\\.allakhazam\\.com/db/item.html", "goblinworkshop\\.com/beta-items/"],photo_shot_re:["photobucket\\.com/albums", "flickr\\.com/photos/", "picasaweb\\.google\\.com|ca|co\\.uk|com\\.au|de|es|fr|it|nl|pl|\\.+\\.+", "maps\\.google\\.com/.+\\.+"],url_exclude_re:["www\\.facebook\\.com/share\\.php", "www\\.digg\\.com/submit\\?", "del\\.icio\\.us/post", "technorati\\.com/tags/", "technorati\\.com/search/", "www\\.addthis\\.com/bookmark\\.php", "www\\.addthis\\.com/feed\\.php", "feeds\\.feedburner\\.com/", "www\\.feedburner\\.com/fb/a/emailFlare\\?", "www\\.feedburner\\.com/fb/a/survey\\?", "twitthis\\.com/twit\\?", "www\\.blogger\\.com/email-post\\.g\\?", "outside\\.in/stories/submit\\?", "reddit\\.com/submit\\?", "www\\.stumbleupon\\.com/submit\\?", "www\\.sphere\\.com/search\\?", "photo\\.xanga\\.com/.+\\.+"],rich_shot_exceptions:null,resize:{img_sized:{large:"size_462",small:"size_305"/},w:150,h:95,w_list:["main","preview_div","preview","bubble","search","box","options","option_iframe","marela","marela_ad","flash_overlay","drag_overlay","img_a","body","bubble_img","bg_body"],h_list:["main","preview_div","pre

```

view","bubble","flash_overlay","img_a","marea_ad","body","bubble_img","bg_body"],rz:false,r
z_w:1250,rz_h:530},auto_shot:{on:false,treatment:"dashed",limit:"7",rescan:false,color_opt:"t",
color:"",list:[],list_tid:{},timestamp:0,inspect:false},rnd:"c971b1c923393ed1daade47534839dfc"
,url_max:55,text:{Options:"Options",Disable:"Disable",SearchTheWeb:"Search the Web on
Snap.com",GetFreePreviews:"Get Free Shots",SearchButton:"Search",GoToURL:"Go to
%URL",SubmitSearch:"Submit your search",SignUpLink:"Sign Up and add Free Snap Shots to
your site in less than 5 min!",SnapLogoTooltip:"Powered by Snap",OptionsTooltip:"Snap Shots
Options",OptionsClose:"Close Options",EnlargeShotSize:"Make this Shot
larger",ReduceShotSize:"Make this Shot smaller",ClickToPlay:"Click to play"},fl:""};
SNAP_COM.hash = function(str) { var h = 5003; for (var i = 0; i < str.length; ++i) { h +=
str.charCodeAtAt(i); h += (h << 10); h ^= (h >> 6); } h += (h << 3); h ^= (h >> 11); h += (h <<
15); return Math.abs(h); };
SNAP_COM.size = function() { var e, e2; if (e = document.getElementById('alpha')) { if (e2 =
document.getElementById('beta')) { return e.innerHTML.length + e2.innerHTML.length; }
return e.innerHTML.length; } if (e = document.getElementById('beta')) { return
e.innerHTML.length; } if (e = document.getElementById('blogbody')) { return
e.innerHTML.length; } if (e = document.getElementById('main')) { return e.innerHTML.length;
} if (e = document.getElementById('content')) { return e.innerHTML.length; } if (e =
document.getElementsByTagName('body')[0]) { return e.innerHTML.length; } return 0; };
SNAP_COM.marea = {ad_src_base :
'http://ad.doubleclick.net/pfadj/ss.fl/s/dcmnt=text/javascript;sk=spakey;sov=0;bub=0;ord=111111
1111?', ad_type : 'doubleclick-fallback'};
SNAP_COM.shot_main_js = function() {
  if (SNAP_COM.shot_main_js_called === true) return;
  SNAP_COM.shot_main_js_called = true;
  var s = document.getElementsByTagName("script")[0];
  var js = document.createElement("script");
  js.type = "text/javascript";
  js.src = "http://i.ixnp.com/shot_main_js/v3.29/";
  s.parentNode.insertBefore(js, s);
  var js = document.createElement("script");
  js.type = "text/javascript";
  js.src = "http://shots.snap.com/asj/v1/spakey/" + SNAP_COM.hash(document.location.href) +

"/auto_shot.js?sz="+SNAP_COM.size()+"&lm="+escape(document.lastModified)+"&size=large
&ad_only=1";
  s.parentNode.insertBefore(js, s);
}
SNAP_COM.window_onload = function() {
  SNAP_COM.window_loaded = true;
};
if (window.addEventListener) {
  window.addEventListener("load", SNAP_COM.window_onload, false);
} else if (window.attachEvent) {
  window.attachEvent("onload", SNAP_COM.window_onload);
}

```

SNAP_COM.shot_main_js();

Exhibit 13

Exhibit 13: The Snap Technologies Inc. home page

www.snap.com and i.snap.com are both aliases to the same Snap home page, shown below:

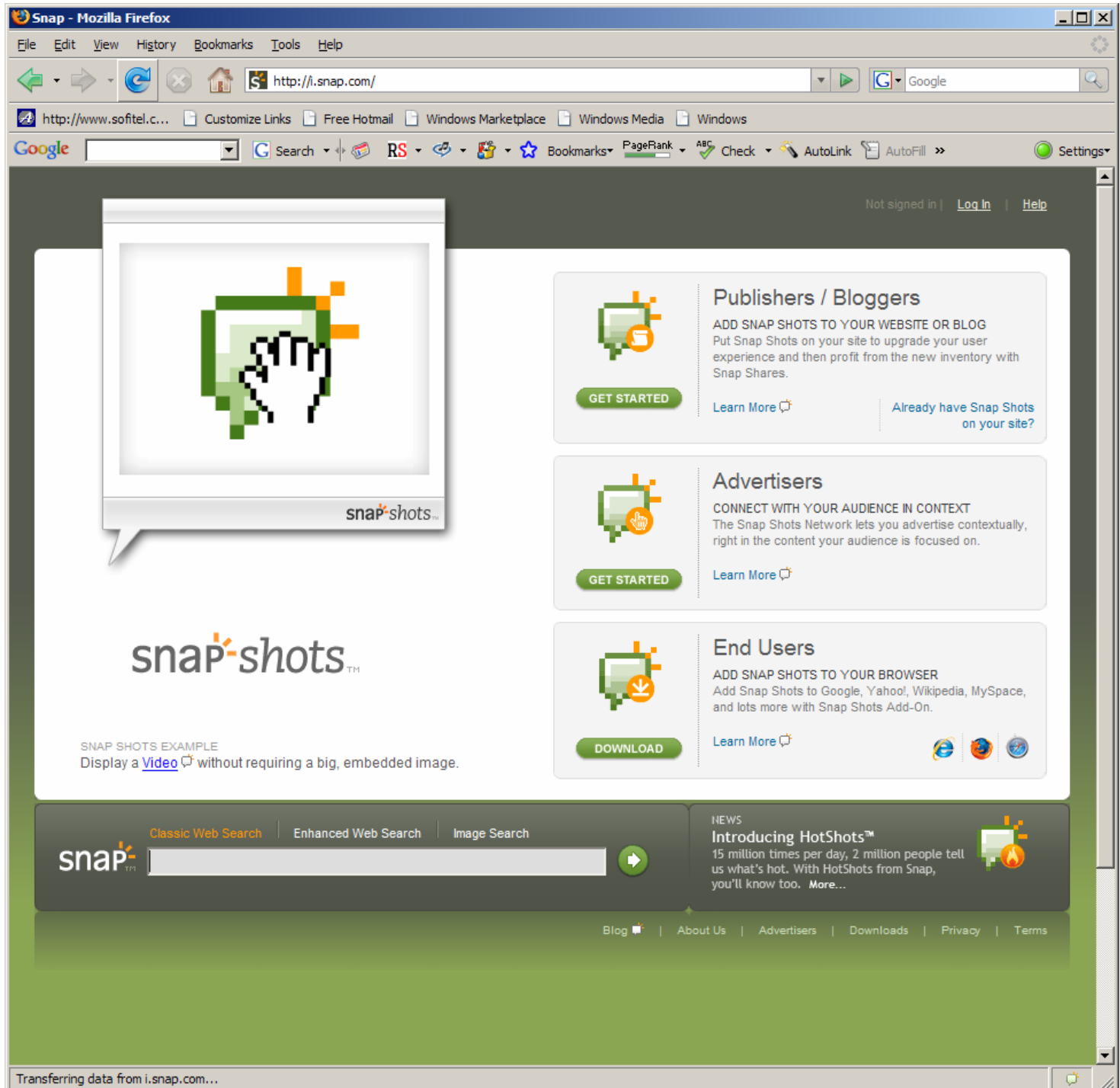


Exhibit 14

Exhibit 14: Example Google search with Snap Browser Add-On tool

This example shows that the Snap Browser Add-On tool does not provide “an annotated” Web page, since no previews nor thumbnail visual images are part of this Web page.

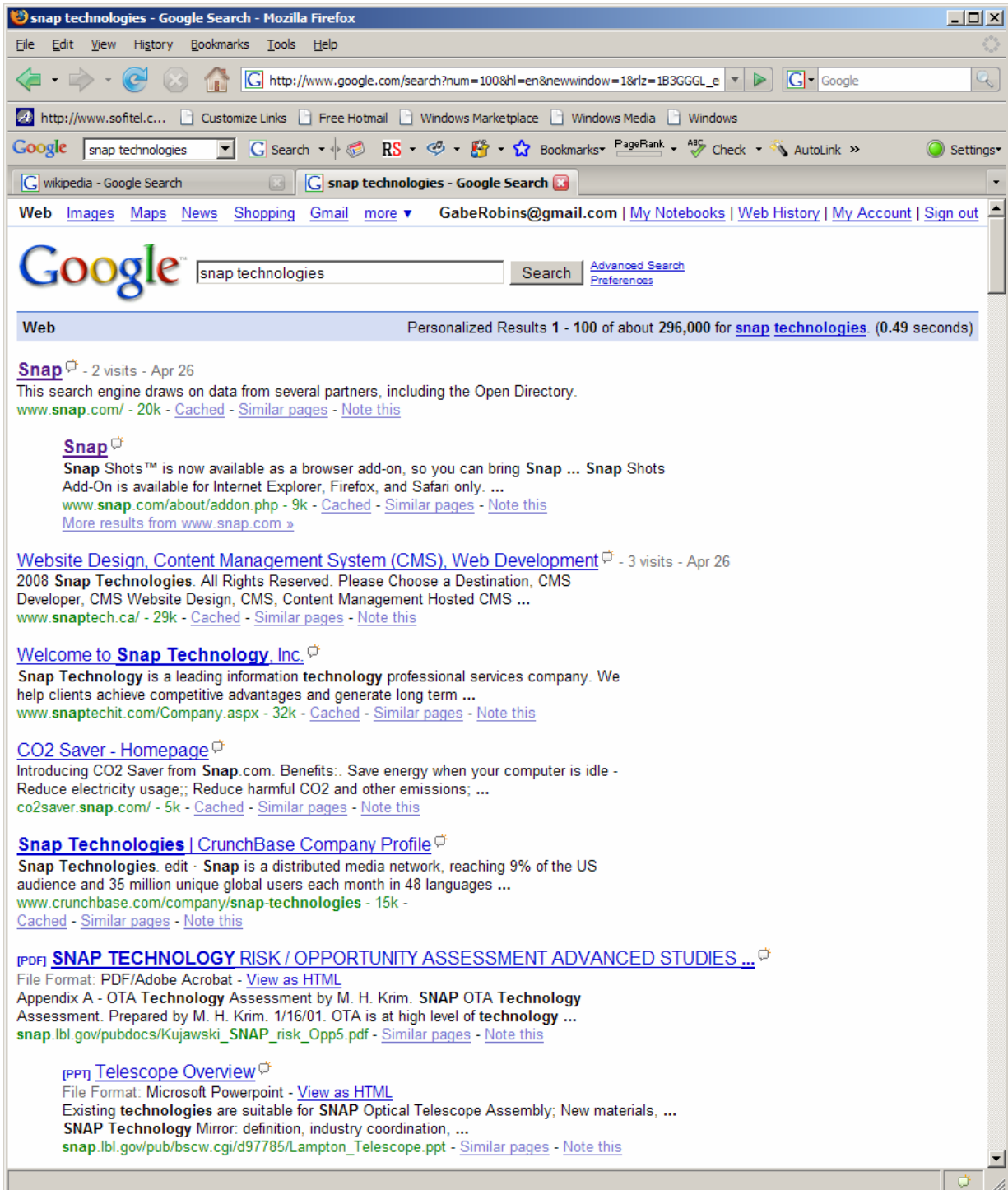


Exhibit 15

Exhibit 15: Example of a live web page preview from the Snap Add-On tool



Exhibit 16

Exhibit 16: Example of a live video preview from the Snap Add-On tool

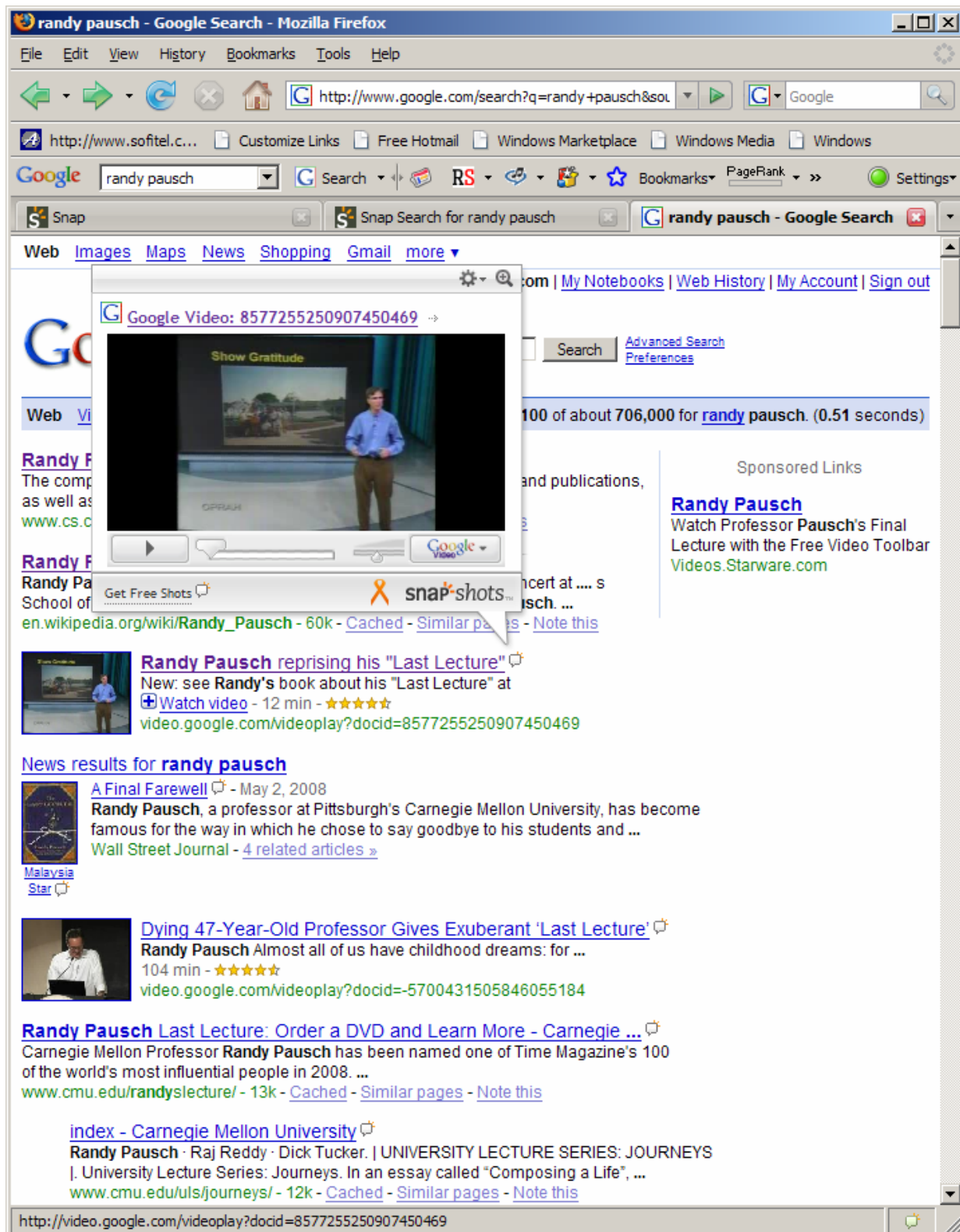


Exhibit 17

Exhibit 17: Example of a live video playing inside a Snap preview window

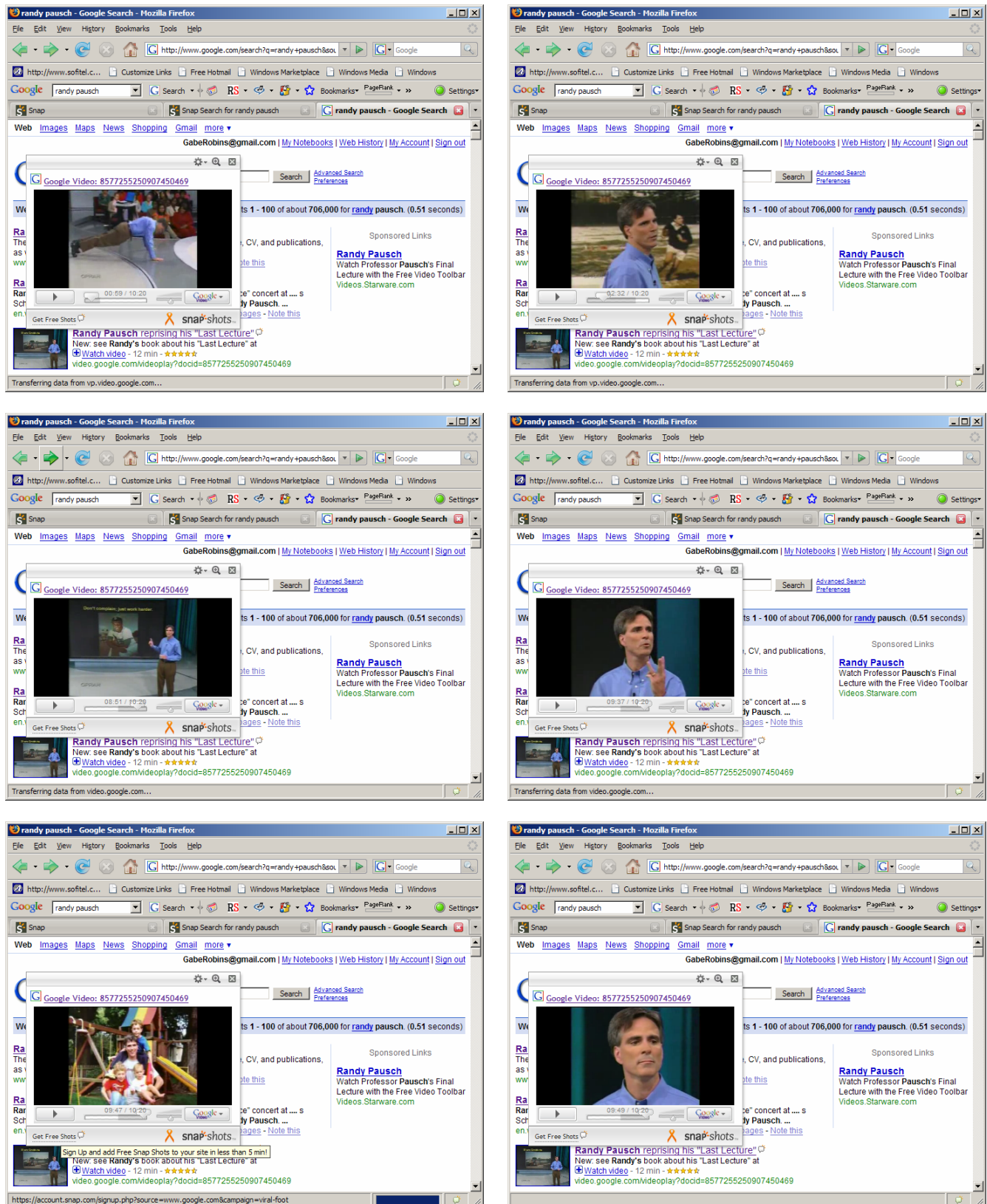


Exhibit 18

Exhibit 18: Example of a live video playing inside a Snap preview (larger size)

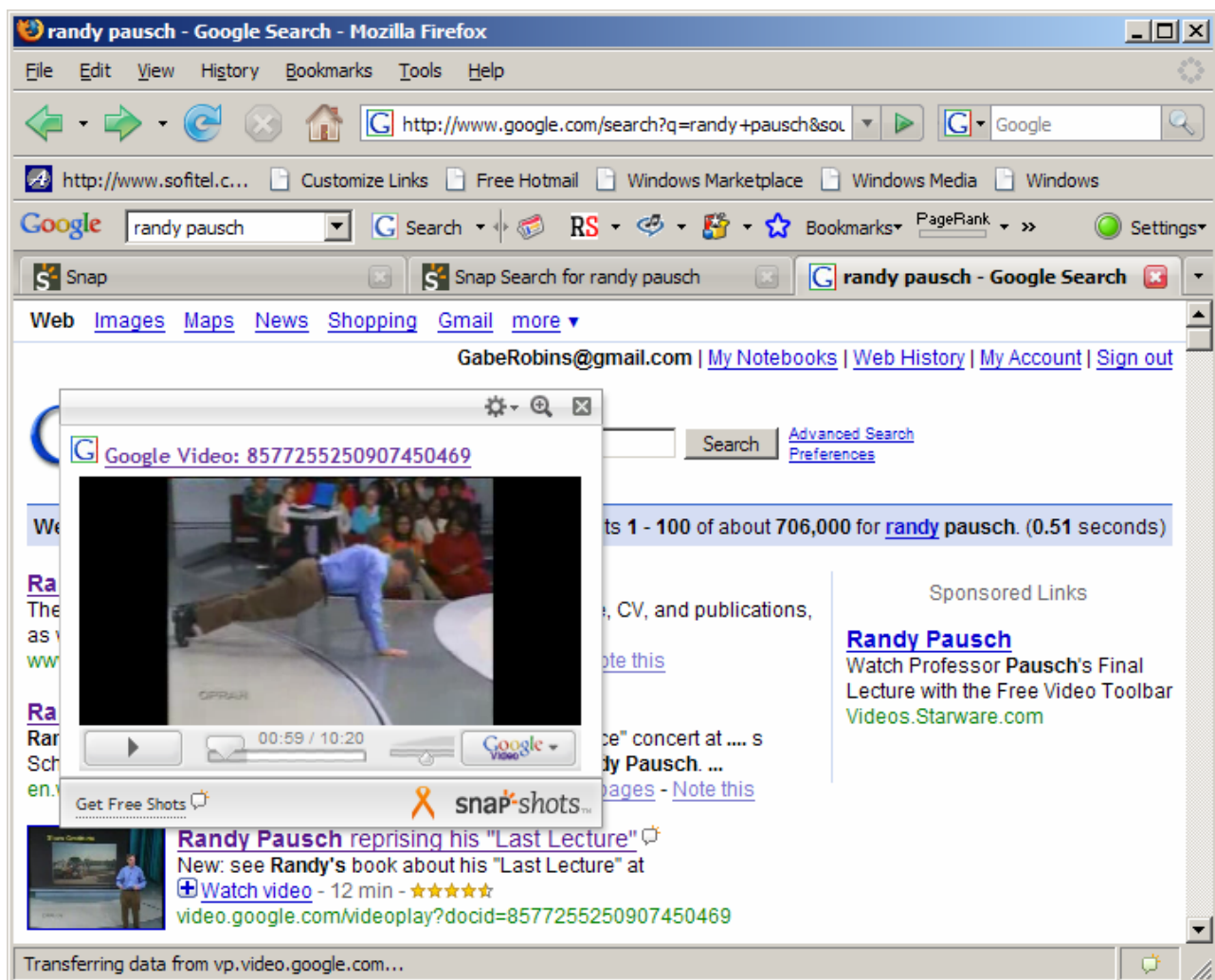
Example (part 1 of 6) showing a live video playing inside a Snap preview, at time 0:59

The Google search done to discover this video was on the key phrase "Randy Pausch":

<http://www.google.com/search?q=randy+pausch>

The video that is playing inside the Snap preview is:

<http://video.google.com/videoplay?docid=8577255250907450469>



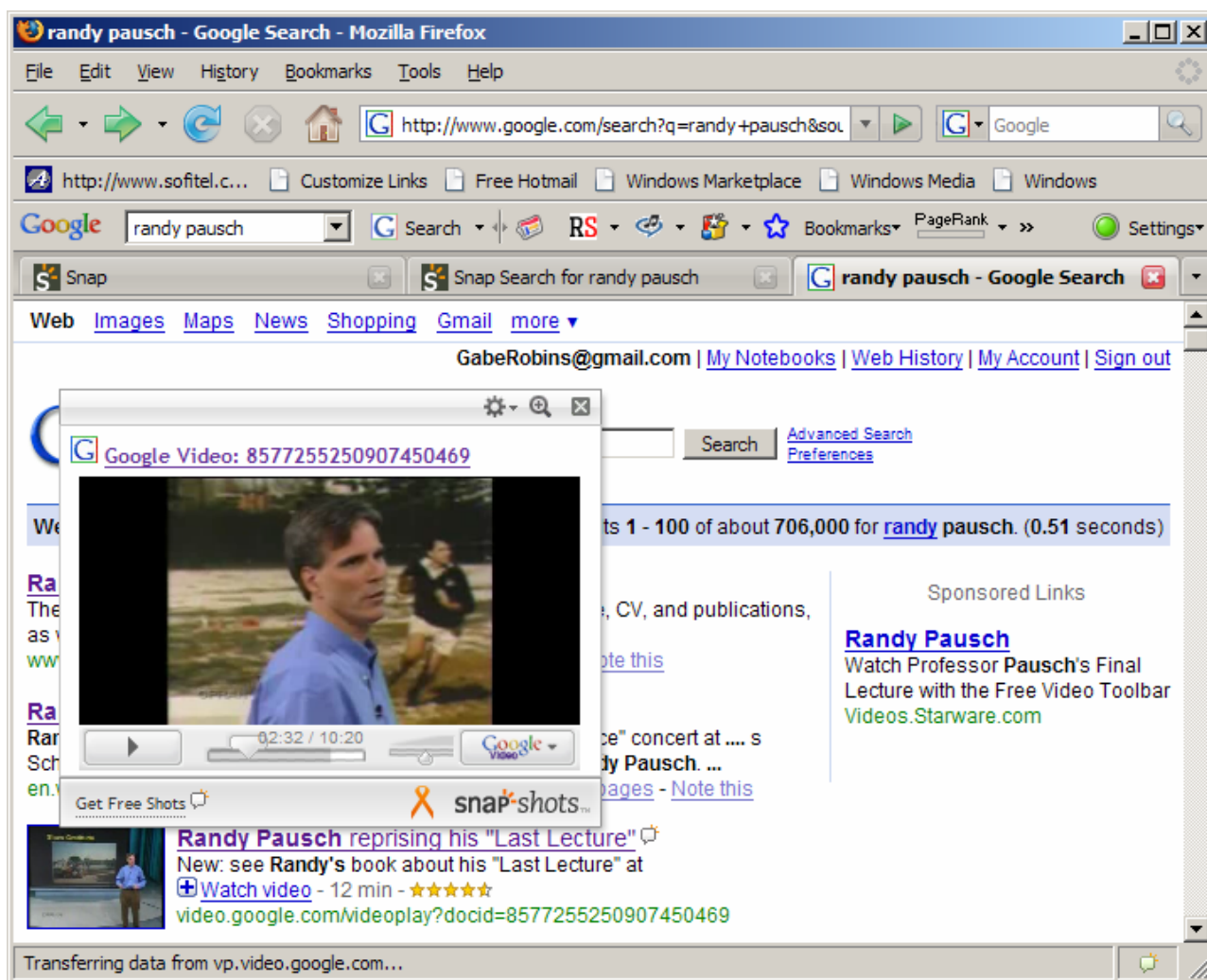
Example (part 2 of 6) showing a live video playing inside a Snap preview, at time 2:32

The Google search done to discover this video was on the key phrase "Randy Pausch":

<http://www.google.com/search?q=randy+pausch>

The video that is playing inside the Snap preview is:

<http://video.google.com/videoplay?docid=8577255250907450469>



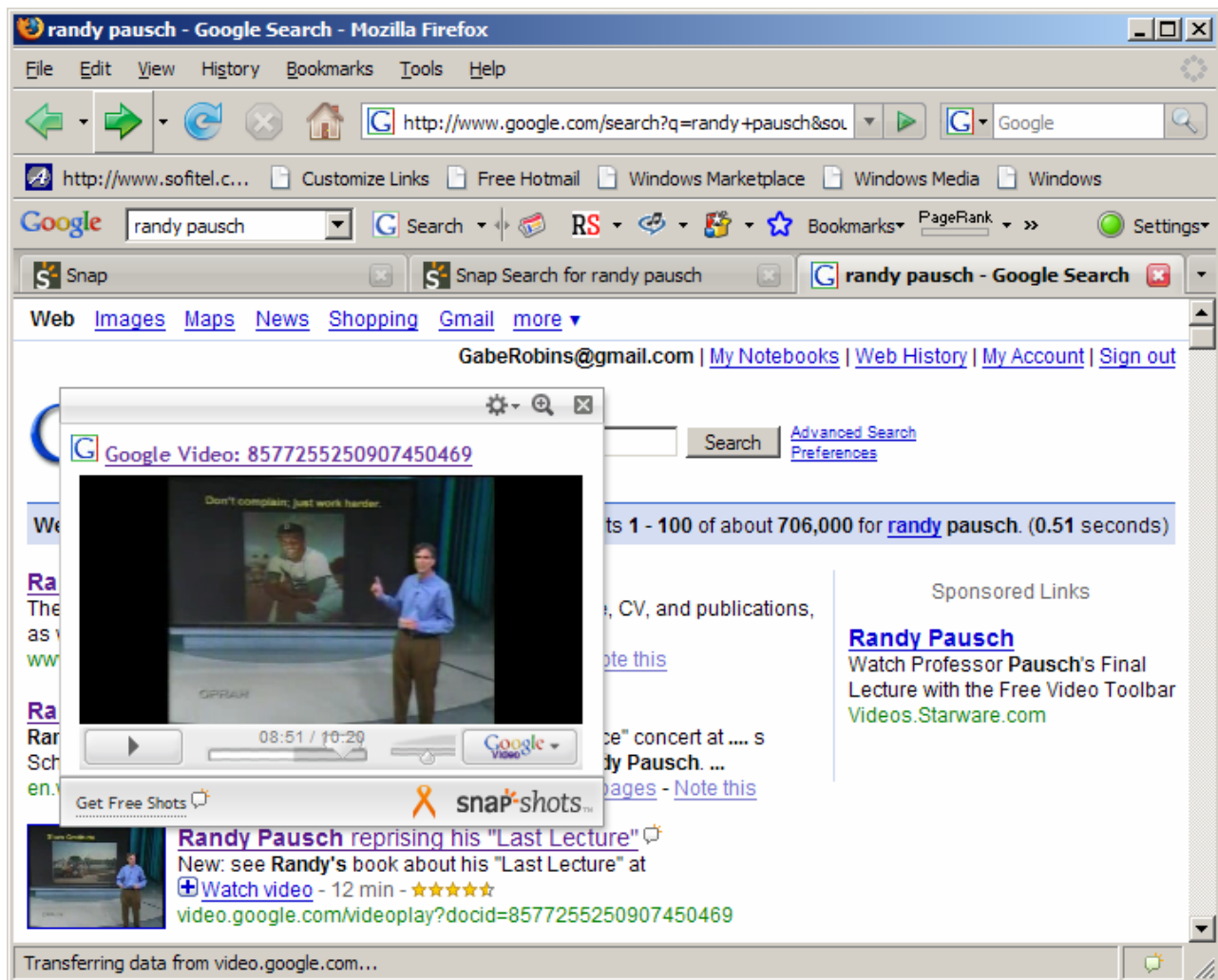
Example (part 3 of 6) showing a live video playing inside a Snap preview, at time 8:51

The Google search done to discover this video was on the key phrase “Randy Pausch”:

<http://www.google.com/search?q=randy+pausch>

The video that is playing inside the Snap preview is:

<http://video.google.com/videoplay?docid=8577255250907450469>



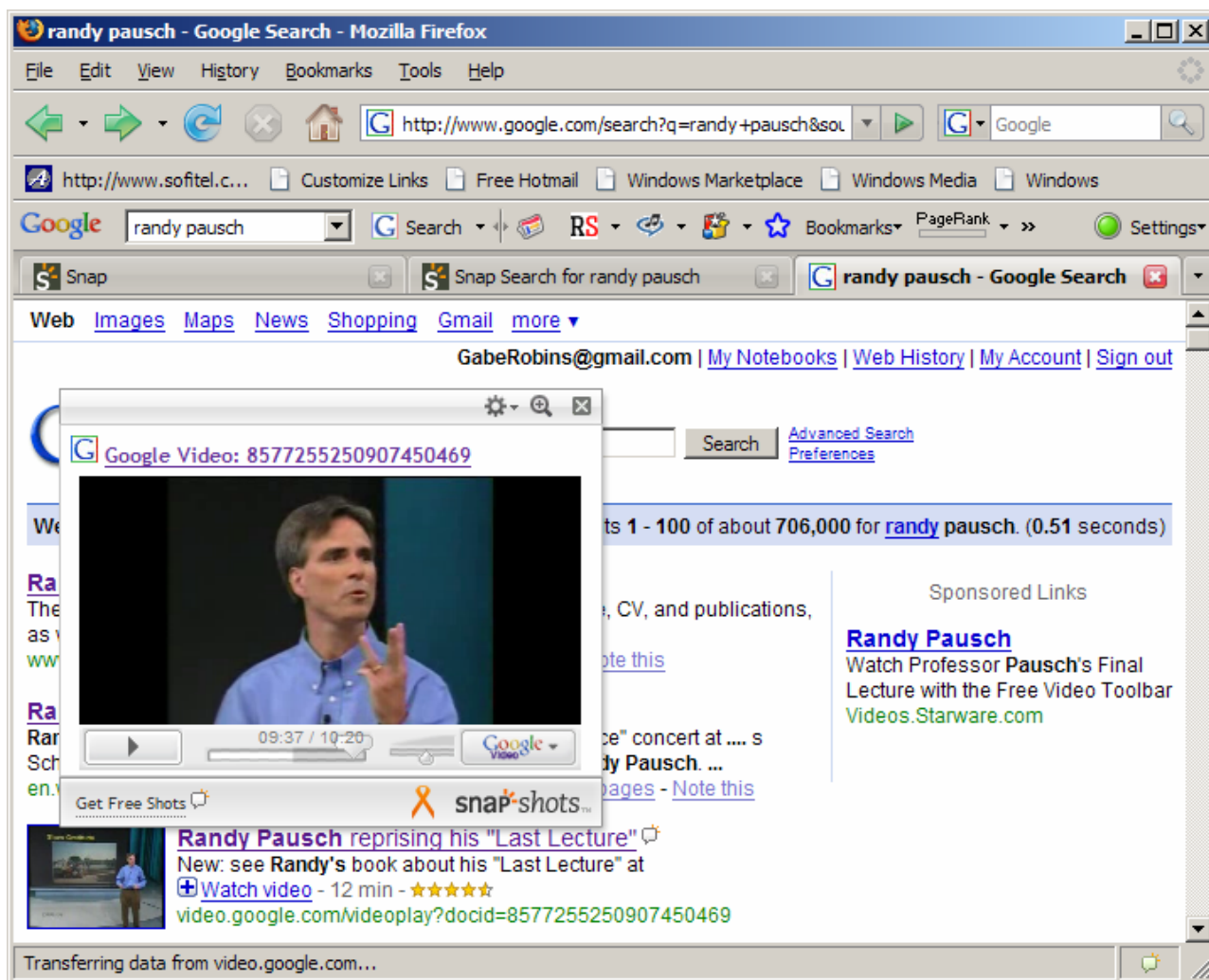
Example (part 4 of 6) showing a live video playing inside a Snap preview, at time 9:37

The Google search done to discover this video was on the key phrase "Randy Pausch":

<http://www.google.com/search?q=randy+pausch>

The video that is playing inside the Snap preview is:

<http://video.google.com/videoplay?docid=8577255250907450469>



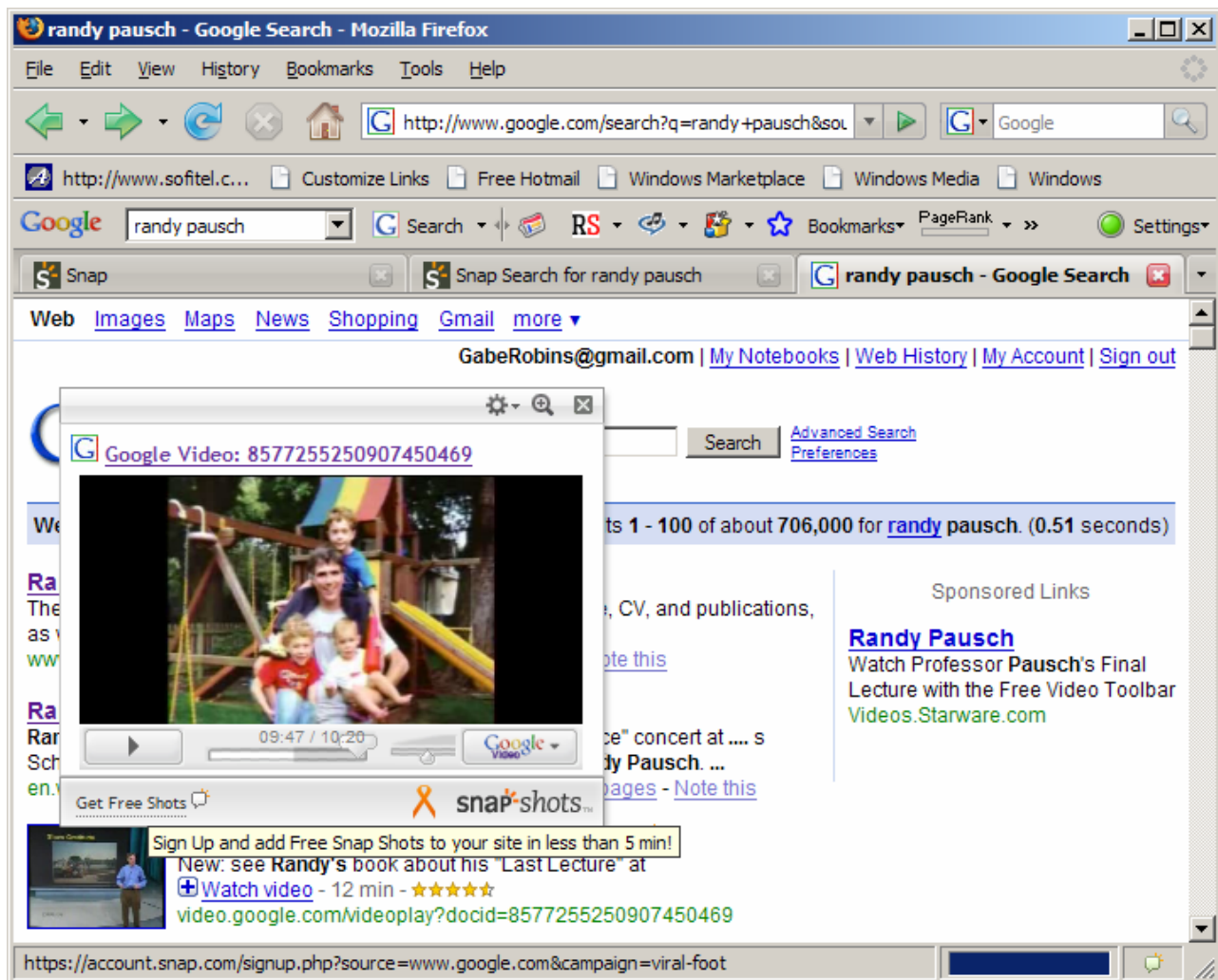
Example (part 5 of 6) showing a live video playing inside a Snap preview, at time 9:47

The Google search done to discover this video was on the key phrase “Randy Pausch”:

<http://www.google.com/search?q=randy+pausch>

The video that is playing inside the Snap preview is:

<http://video.google.com/videoplay?docid=8577255250907450469>



Example (part 6 of 6) showing a live video playing inside a Snap preview, at time 9:49

The Google search done to discover this video was on the key phrase "Randy Pausch":

<http://www.google.com/search?q=randy+pausch>

The video that is playing inside the Snap preview is:

<http://video.google.com/videoplay?docid=8577255250907450469>

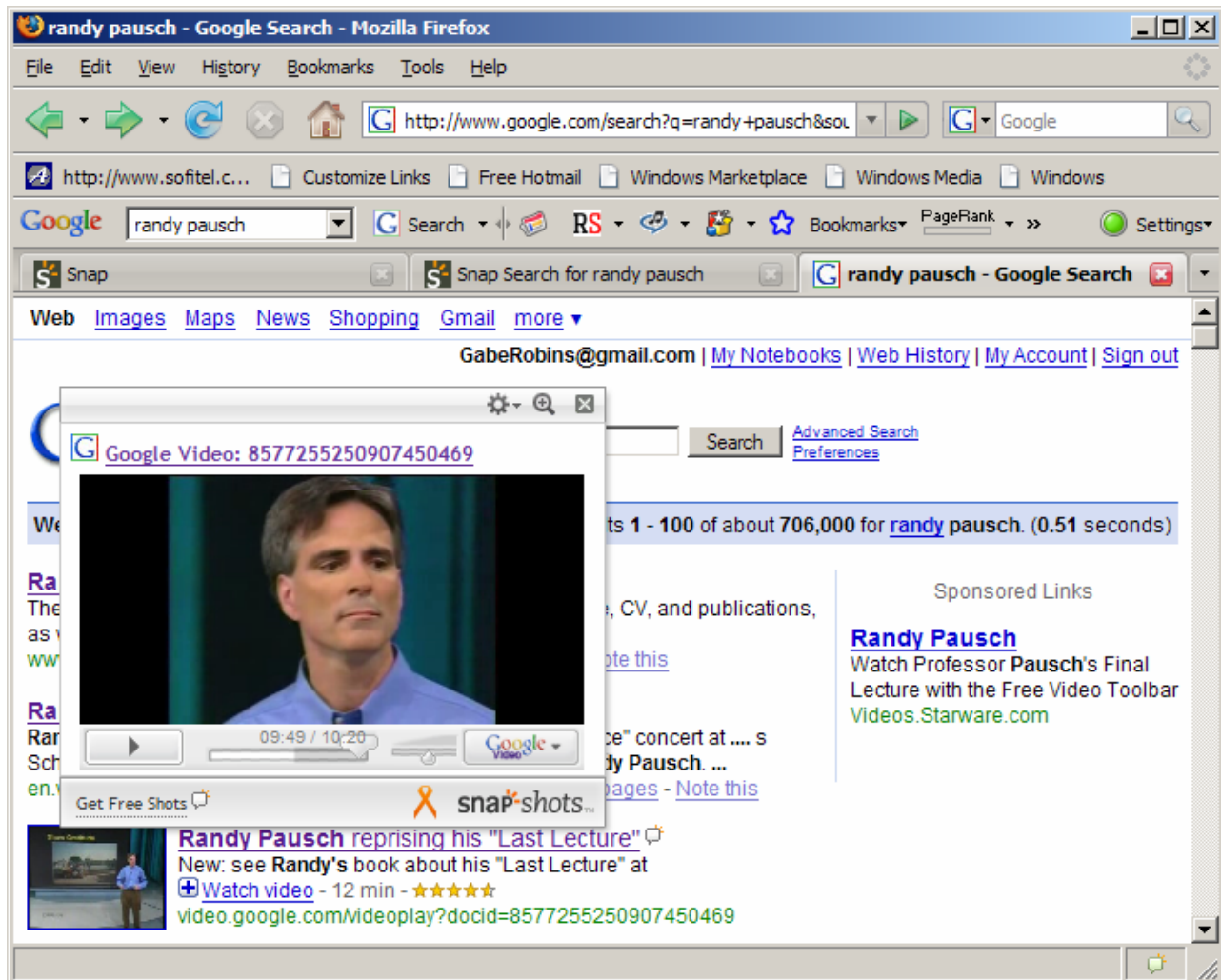


Exhibit 19

Exhibit 19: Snap Shots for Publishers / Bloggers service

The Snap Shot tool for publishers / bloggers (described at <http://www.snap.com/snapshots.php>) creates the same functionality as the Snap Browser Add-On tool. To demonstrate this, I installed it on the Web page http://www.cs.virginia.edu/~robins/CS_readings.html and the result can be seen in the following screenshot, depicting Snap previews of several of the articles:

The screenshot displays a Mozilla Firefox browser window with the address bar showing http://www.cs.virginia.edu/~robins/CS_readings.html. The page content is organized into a list of articles on the left and Snap Shot previews on the right. The Snap Shot tool, 'snapshots', is used to create small, readable versions of web pages. The browser window title is 'Great Reading in Computer Science - Mozilla Firefox'. The left sidebar contains a list of articles under categories like 'Quantum Computing', 'History of Computing', 'Future of Computing', 'The Wikipedia', 'Mathematic', and 'Additional'. The right side shows Snap Shot previews for 'Alan Turing's Forgotten Ideas', 'Computers Without Clocks', 'A Robot in Every Home', 'The Semantic Web in Action', and 'Self-Powered Nanotech'. Each preview includes a title, author, and a small image or graphic.

Articles listed on the left:

- Engineering Life: Building a FAB for Biology, David Baker et al., Scientific American, June 2006, pp. 44-51.
- Big Lab on a Tiny Chip, Charles Choi, Scientific American, June 2006, pp. 44-51.
- Quantum Computing
 - Quantum Mechanical Computers, Seth Lloyd, Scientific American, June 2006, pp. 44-51.
 - Quantum Computing with Molecules, Gershenfeld and Pashenberger, Scientific American, June 2006, pp. 44-51.
 - Black Hole Computers, Seth Lloyd and Jack Ng, Scientific American, June 2006, pp. 44-51.
 - Computing with Quantum Knots, Graham Collins, Scientific American, June 2006, pp. 44-51.
 - The Limits of Quantum Computers, Scott Aaronson, Scientific American, June 2006, pp. 44-51.
- History of Computing
 - Alan Turing's Forgotten Ideas, B. Jack Copeland and Stuart H. Strevens, Scientific American, June 2006, pp. 44-51.
 - Ada and the First Computer, Eugene Kim and Betty H. Wang, Scientific American, June 2006, pp. 44-51.
- Future of Computing
 - Microprocessors in 2020, David Patterson, Scientific American, June 2006, pp. 44-51.
 - Computing Without Clocks, Ivan Sutherland and John D. DeRose, Scientific American, June 2006, pp. 44-51.
 - Making Silicon Last, Bahram Jalali, Scientific American, June 2006, pp. 44-51.
 - A Robot in Every Home, Bill Gates, Scientific American, January 2006, pp. 44-51.
 - Malware Goes Mobile, Mikko Hypponen, Scientific American, November 2005, pp. 44-51.
 - Ballbots, Ralph Hollis, Scientific American, October 2006, pp. 72-73.
 - Dependable Software by Design, Daniel Jackson, Scientific American, June 2006, pp. 44-51.
 - The Semantic Web in Action, Lee Feigenbaum et al., Scientific American, June 2006, pp. 44-51.
 - Not Tonight Dear - I Have to Reboot, Charles Choi, Scientific American, June 2006, pp. 44-51.
 - Self-Powered Nanotech, Zhong Lin Wang, Scientific American, January 2006, pp. 44-51.
 - RFID Power, Charles Choi, Scientific American, June 2006, pp. 44-51.
- The Wikipedia
 - List of Mathematics
 - Infinity
 - Discrete mathematics
 - Information theory
 - Game theory
- The Wikipedia
 - Formal logic
 - Automata theory
 - Computational complexity
 - Algorithms
 - Data structures
- Mathematic
 - Combinatorics
 - Infinity
 - How to
 - Godel
- Additional
 - Combinatorics
 - Infinity
 - How to
 - Godel

Snap Shot previews on the right:

- Alan Turing's Forgotten Ideas** by B. Jack Copeland and Stuart H. Strevens. Preview shows a portrait of Alan Turing.
- Computers Without Clocks** by Ivan Sutherland and John D. DeRose. Preview shows a yellow background with the title in large letters.
- A Robot in Every Home** by Bill Gates. Preview shows the title in large letters on a yellow background.
- The Semantic Web in Action** by Lee Feigenbaum et al. Preview shows a blue background with the title in large letters.
- Self-Powered Nanotech** by Zhong Lin Wang. Preview shows the title in large letters on a white background.

The Snap Shot tool is a 'snapshots' service that creates small, readable versions of web pages. The browser window title is 'Great Reading in Computer Science - Mozilla Firefox'. The address bar shows 'http://www.cs.virginia.edu/~robins/CS_readings.html'. The left sidebar contains a list of articles under categories like 'Quantum Computing', 'History of Computing', 'Future of Computing', 'The Wikipedia', 'Mathematic', and 'Additional'. The right side shows Snap Shot previews for 'Alan Turing's Forgotten Ideas', 'Computers Without Clocks', 'A Robot in Every Home', 'The Semantic Web in Action', and 'Self-Powered Nanotech'. Each preview includes a title, author, and a small image or graphic.

Exhibit 20

Exhibit 20: Variable-size Snap previews (760x487 pixels)

This screenshot shows the Snap Enhanced view of the Web page <http://www.wikipedia.org/>

The Snap Enhanced preview image size here is 760x487 pixels.

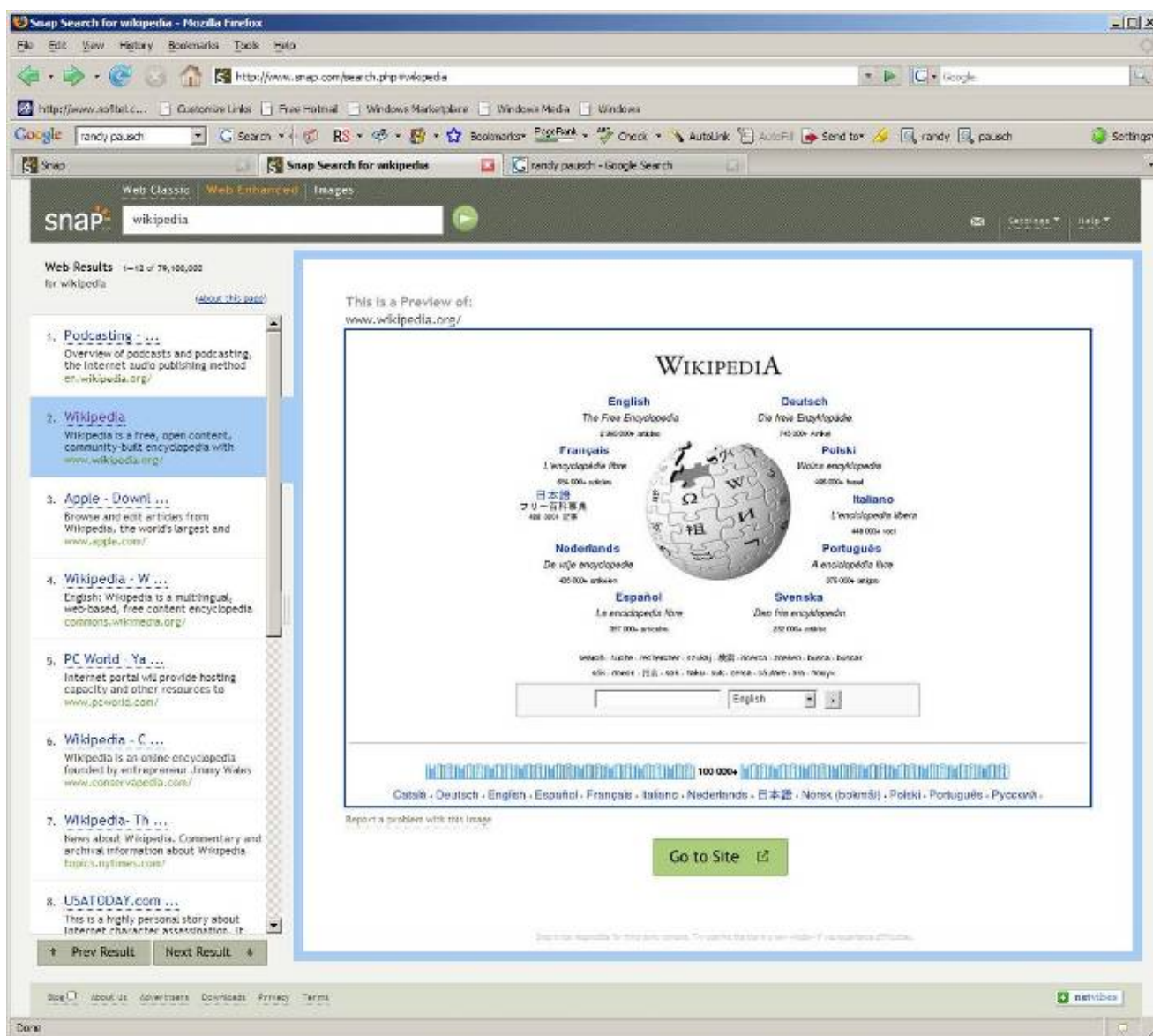


Exhibit 21

Exhibit 21: Variable-size Snap previews (640x410 pixels)

This screenshot shows the Snap Enhanced view of the Web page <http://www.wikipedia.org/>

The Snap Enhanced preview image size here is 640x410 pixels.

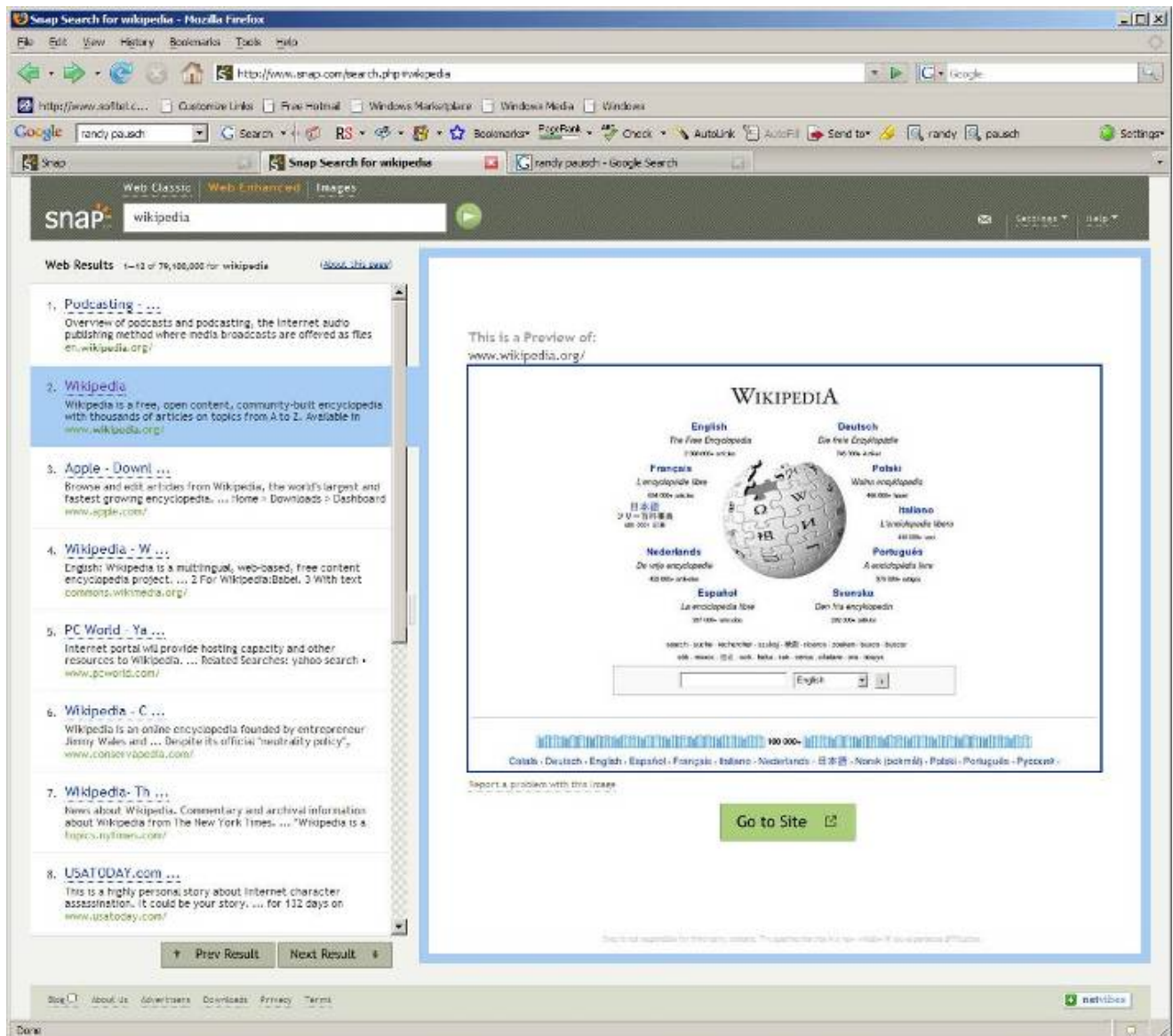


Exhibit 22

Exhibit 22: Variable-size Snap previews (400x256)

This screenshot shows the Snap Enhanced view of the Web page <http://www.wikipedia.org/>

The Snap Enhanced preview image size here is 400x256 pixels.

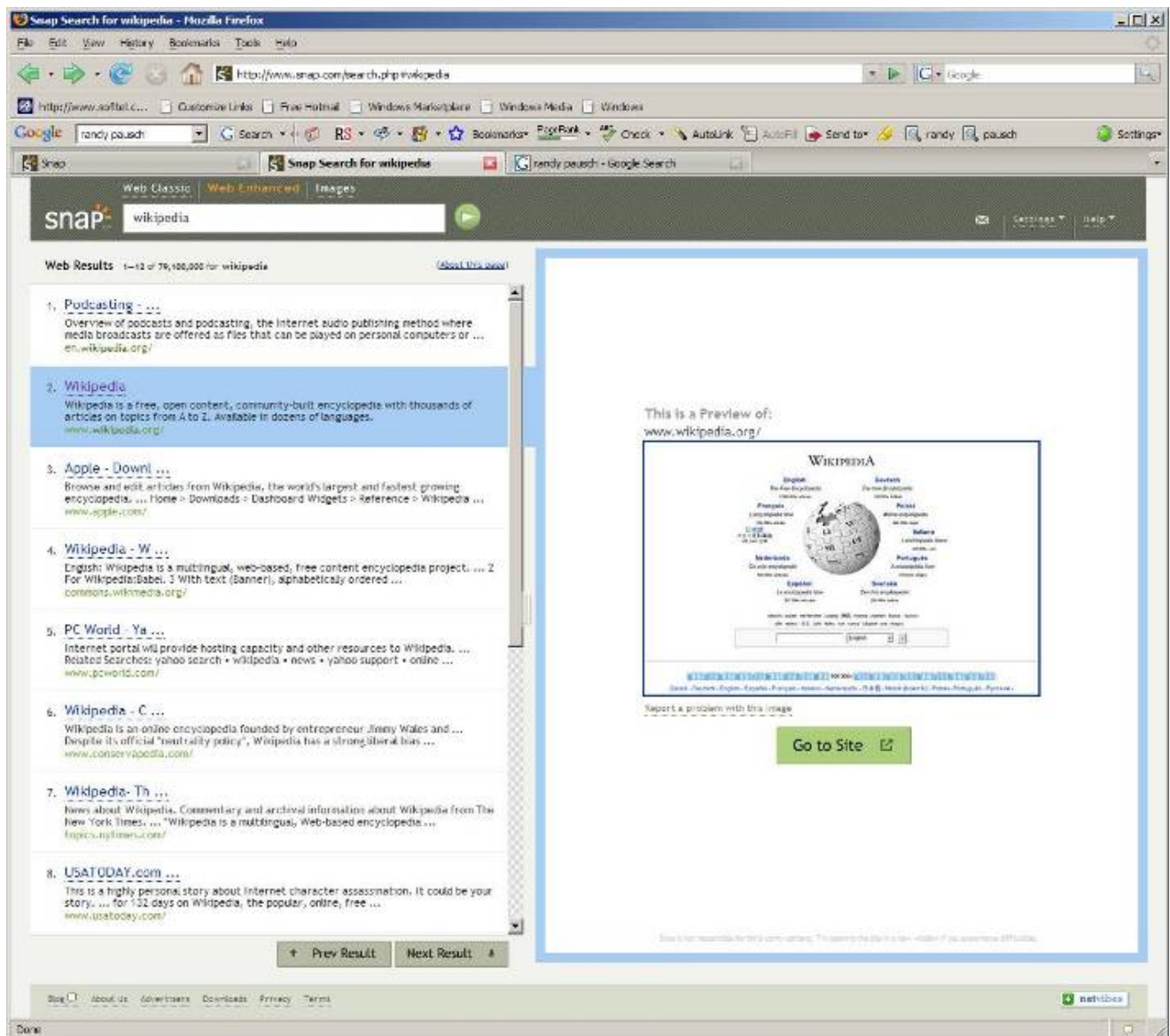
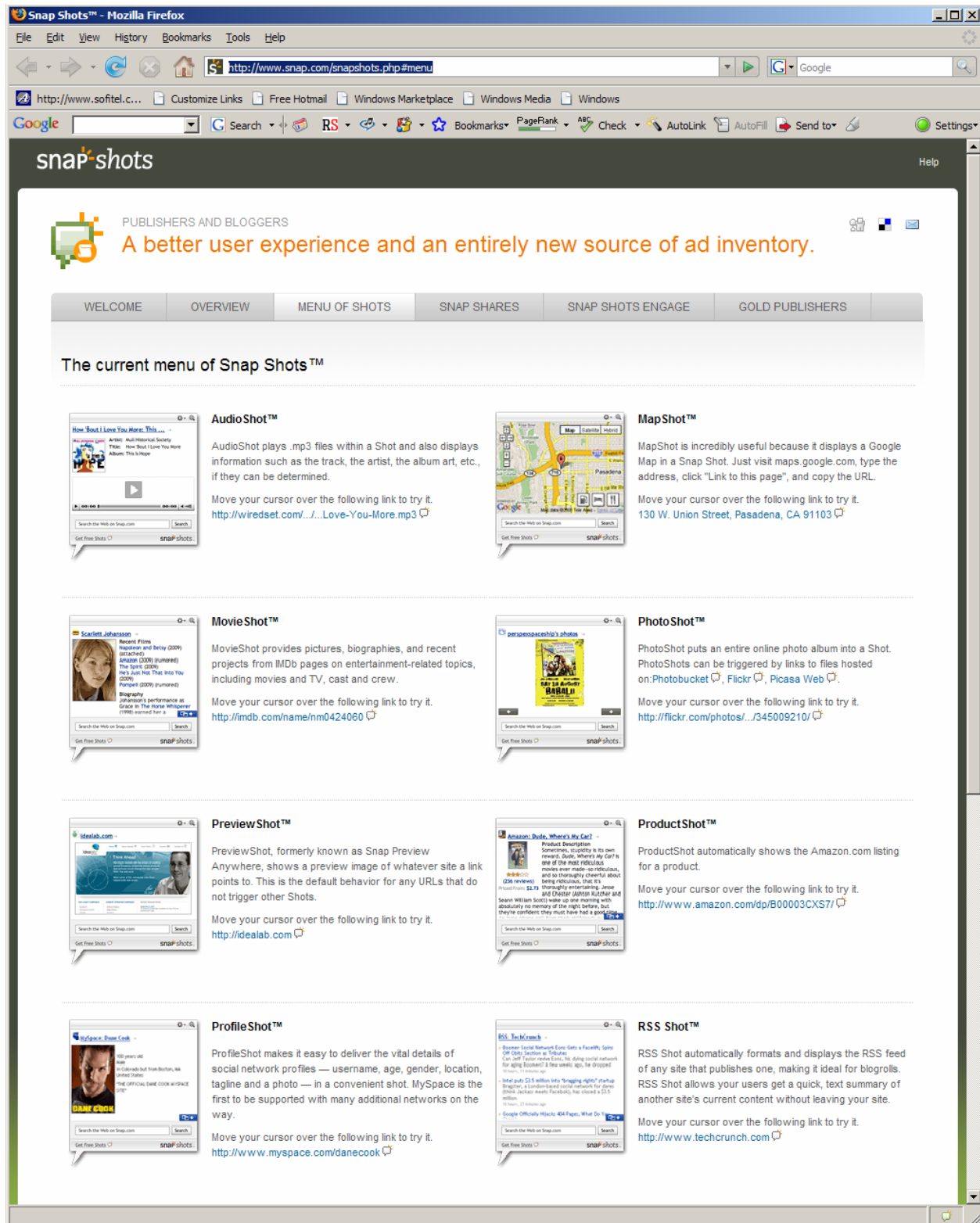


Exhibit 23

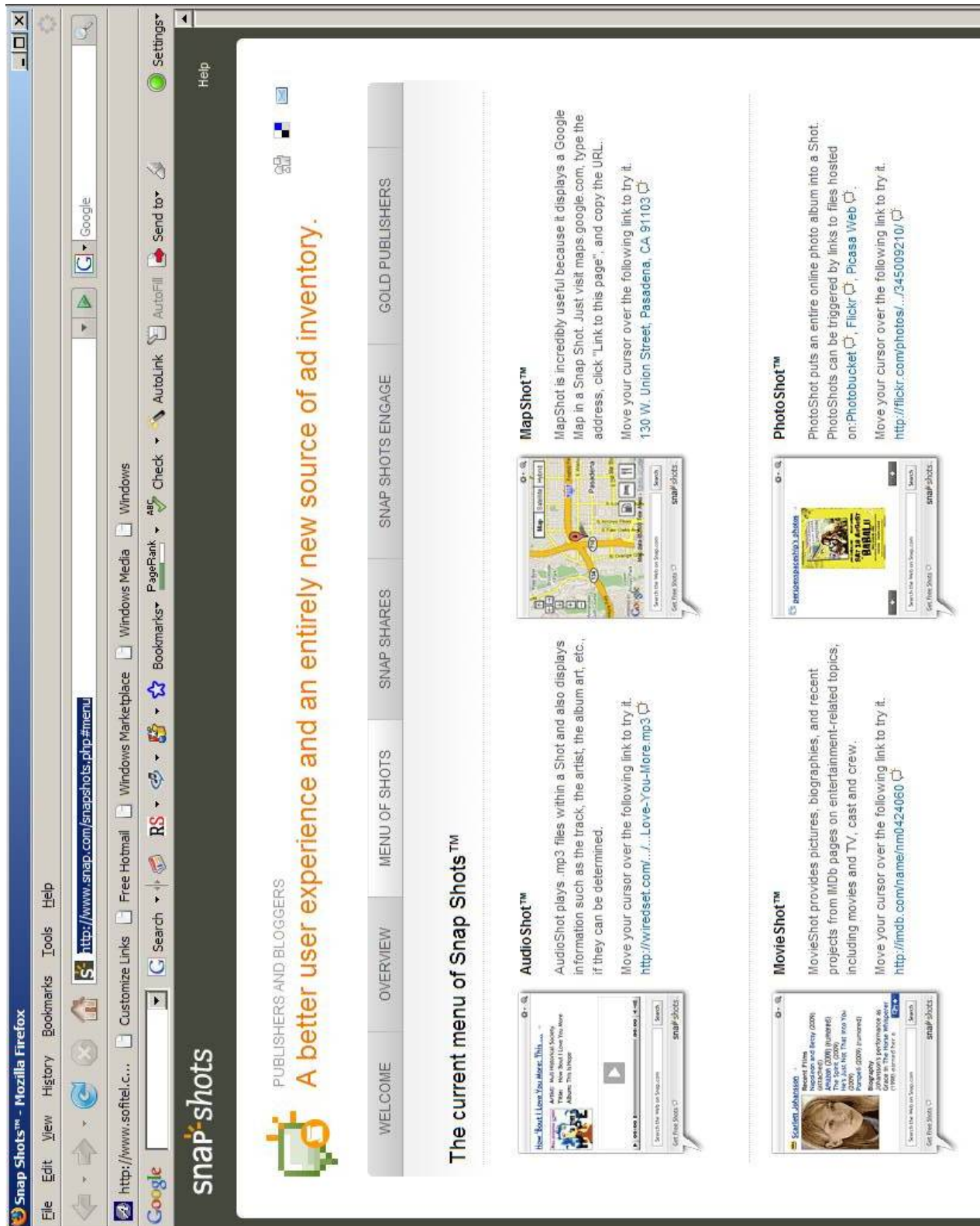
Exhibit 23: The variety of rich-content Snap previews

This is a screenshot of the Web page <http://www.snap.com/snapshots.php#menu>



The variety of rich-content Snap previews (enlarged version of the first image of this Exhibit)

This is a screenshot of the Web page <http://www.snap.com/snapshots.php#menu>



The variety of rich-content Snap previews (enlarged version of the first image of this Exhibit)

This is a screenshot of the Web page <http://www.snap.com/snapshots.php#menu>



Exhibit 24

Exhibit 24: Previews Can Contain Interactive Maps (1 of 2)

This is a screenshot of the Web page <http://www.snap.com/snapshots.php#menu> after moving the mouse over the “Map Shot” URL and zooming in.

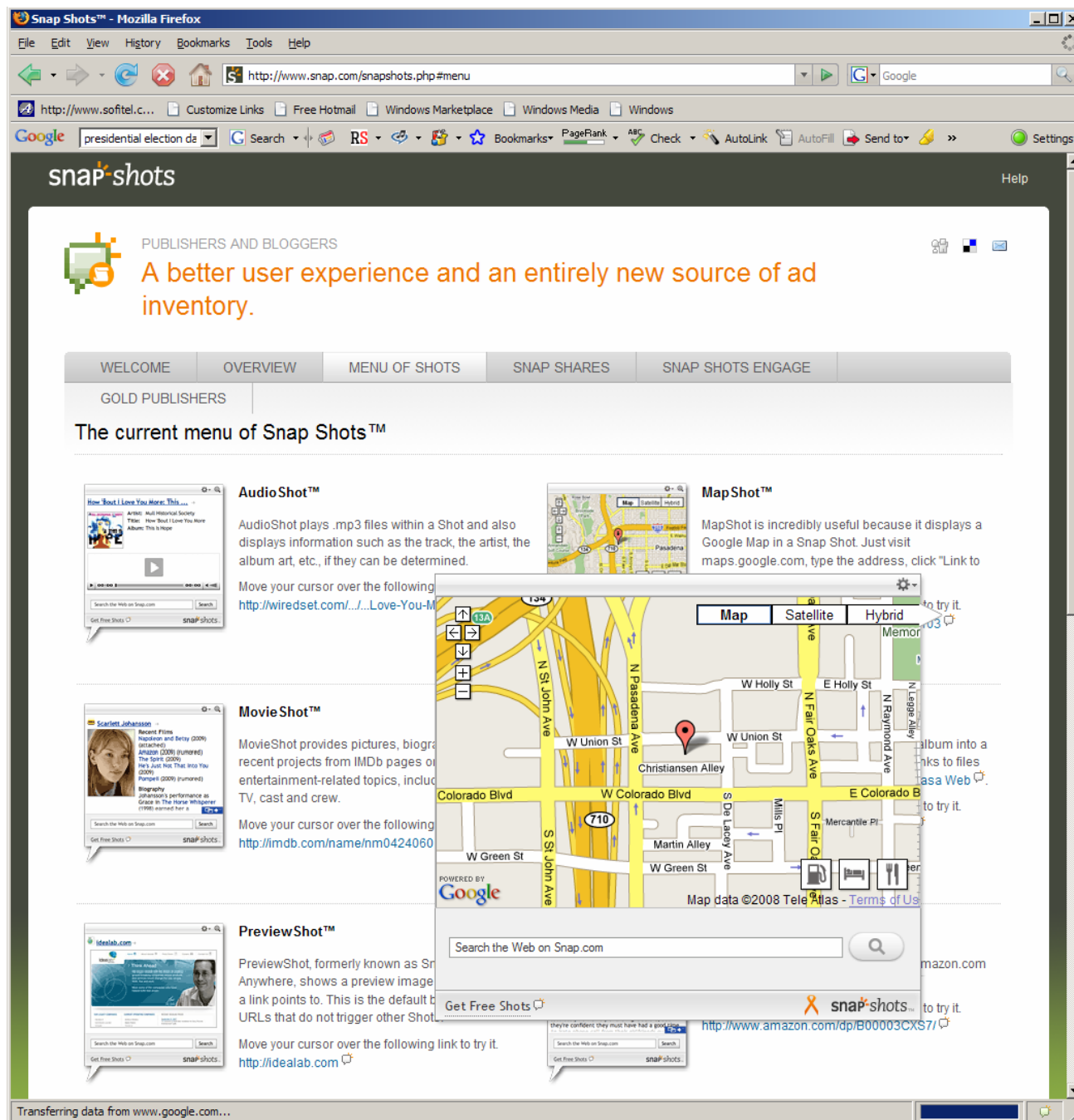


Exhibit 25

Exhibit 25: Previews Can Contain Interactive Maps (2 of 2)

This is a screenshot of the Web page <http://www.snap.com/snapshots.php#menu> after moving the mouse over the “Map Shot” URL, zooming in, and changing the map view to “satellite”, with the local restaurants flag enabled.



Exhibit 26

Exhibit 26: Previews can contain other previews

This is a screenshot of the Web page <http://www.snap.com/snapshots.php#menu> after moving the mouse over the “Map Shot” URL, zooming in, changing the map view to “satellite”, clicking the restaurants display icon (lower right), and clicking one of the restaurants (red marks). This yields a “preview within a preview”, showing that previews can be nested recursively.



Exhibit 27

Exhibit 27: Screenshot of an MS Word document with “thumbnails” view enabled

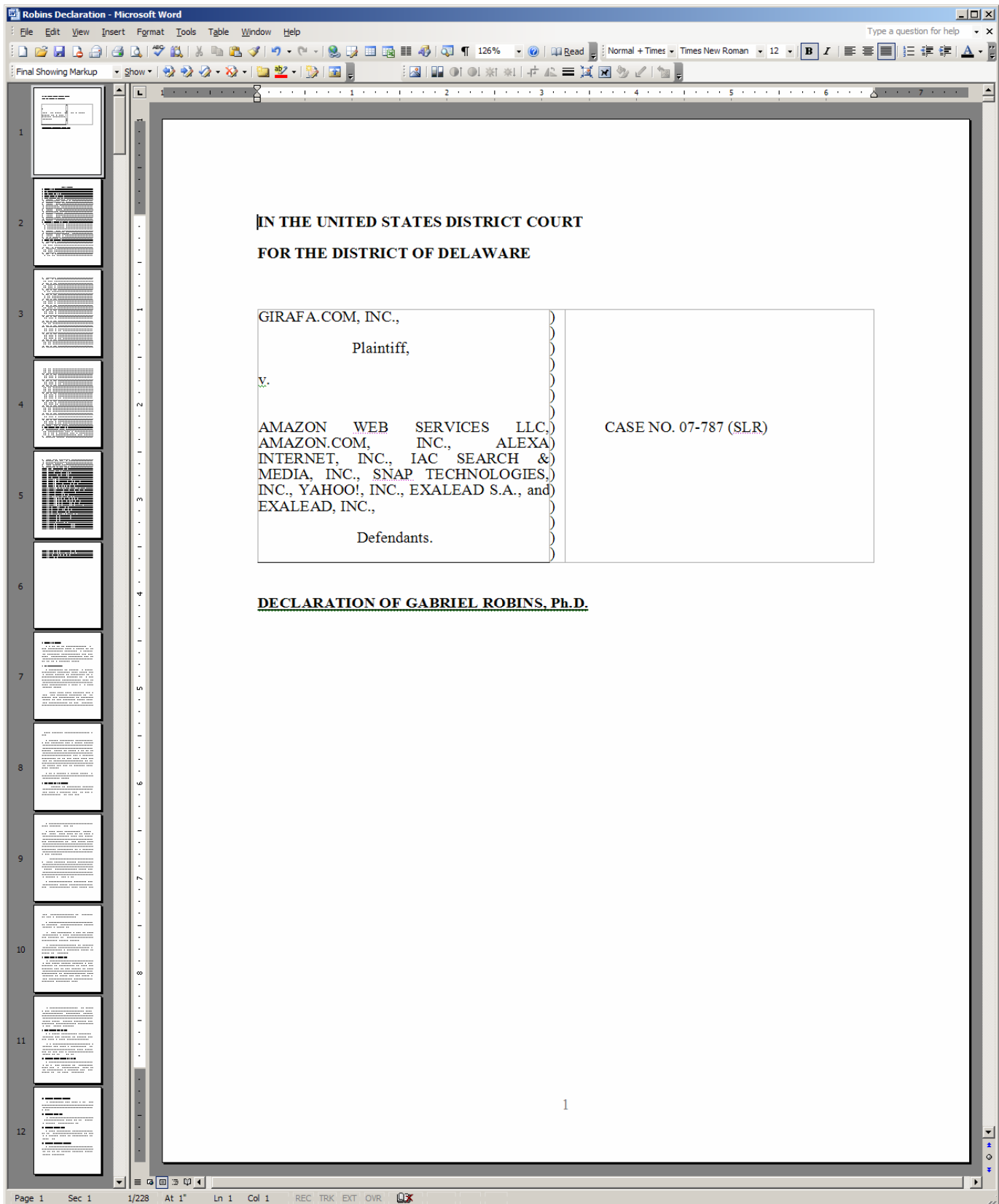


Exhibit 28

Exhibit 28: Screenshot of Snap Enhanced tool showing a medium-sized preview

The Snap Enhanced search performed was for the search keyword “CNN”, at 1:14pm (EST) on Monday May 12, 2008. The resulting URL of the search results page was:

<http://www.snap.com/search.php#cnn>

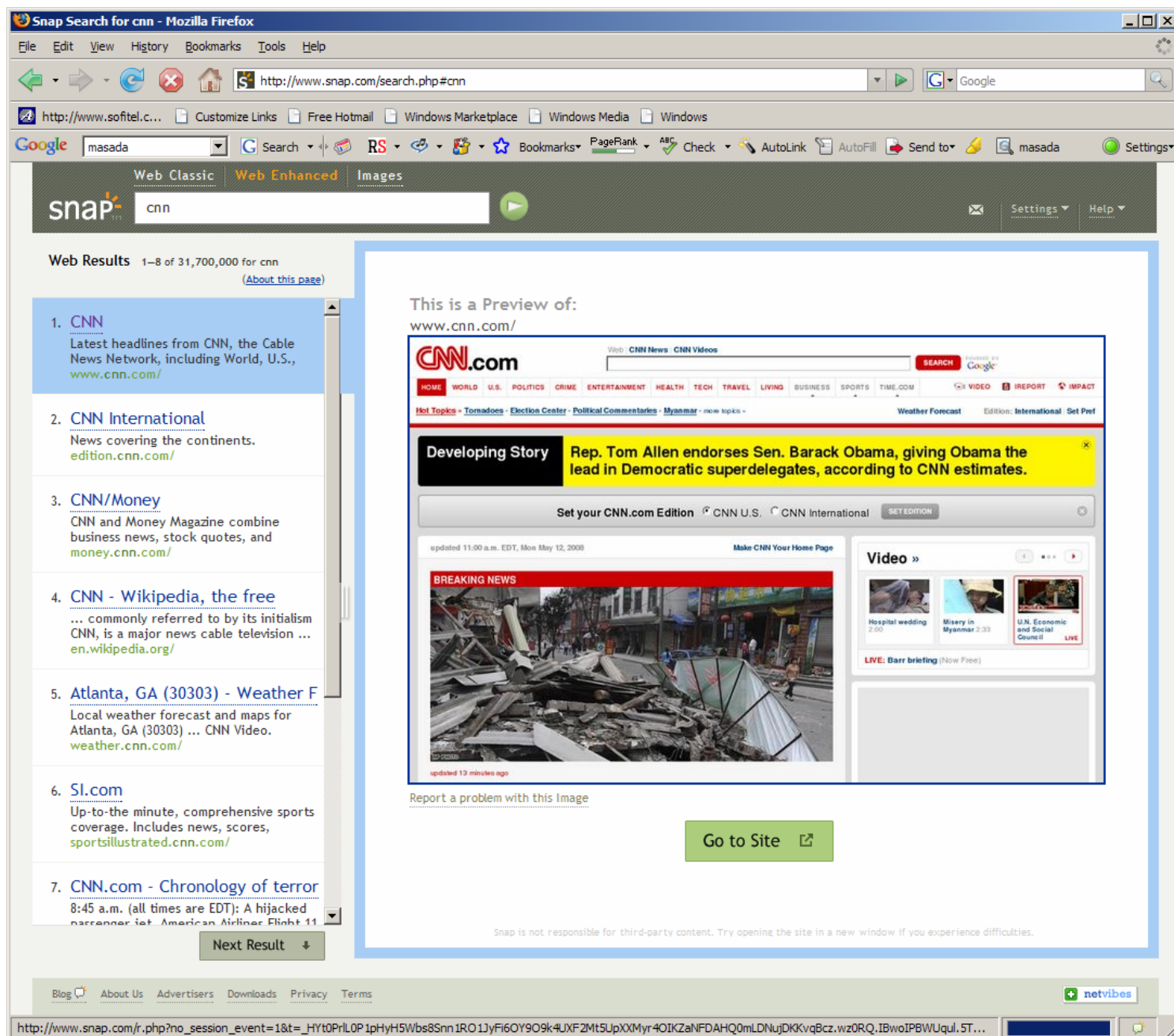


Exhibit 29

Exhibit 29: Comparing MS Word & Girafa thumbnails to Snap Enhanced preview

The top left image below is an MS Word 2003 thumbnail resulting from viewing a document in MS Word 2003 with the “thumbnails” view enabled.

The top right image below is a thumbnail from the Girafa.com tool (resulting from the search on the term “Wikipedia” using the Girafa.com tool).

The bottom image below is a Snap Enhanced middle-size (640x411) preview, resulting from the search described in Exhibit 28 (i.e., using the search keyword “CNN”, with the URL of the search results page being <http://www.snap.com/search.php#cnm>).

All three of these images below are depicted to the same scale as each other (and to the same 100% size as they appear on the computer screen). Clearly the Snap Enhanced middle-size preview is by far the largest of all three of these images (and the large-size Snap Enhanced preview is even larger still, in fact too large to fit within the margins of this page at 100% size).

MS Word thumbnail



Girafa.com thumbnail



Snap Enhanced middle-size preview

